

INDEPENDENT ORBITER ASSESSMENT

ASSESSMENT OF THE LIFE SUPPORT & AIRLOCK SUPPORT SYSTEMS VOLUME 2 OF 2

26 FEBRUARY 1988

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2239X
NASA FMEA #: 06-2-0115-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2239
ITEM: ODOR/BACTERIA FILTER (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2240X
NASA FMEA #: 06-2-0221-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2240
ITEM: BALLAST VALVE SCREEN (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA FM: DAMAGED ELEMENT/OPEN
NASA FM: DAMAGED ELEMENT

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2241X
NASA FMEA #: 06-2-0119-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2241
ITEM: BALLAST SELECT VALVE (BALLAST VALVE ASSEMBLY)
(1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] [] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2242X
NASA FMEA #: 06-2-0446-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2242
ITEM: BALLAST VALVE TO BALLAST CONTROL VALVE LINES AND FITTINGS (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: RESTRICTED/BLOCKED FLOW
NASA FM: RESTRICTED FLOW, EXTERNAL LEAKAGE
IOA COMMENT: BASED ON COMMENT FOR BLOCKED SCREEN FAILURE, THE FAILURE ANALYZED SHOULD HAVE THE SAME CRITICALITY OF 3/2R PNP. A POTENTIAL LOSS OF THE WCS WAS VIEWED AS A 3/2R CRITICALITY BY THE IOA FOR ANY "OFF NOMINAL" CONDITION. "OFF NOMINAL" WAS DEFINED AS ANY FAILURE WHICH COULD REQUIRE USE OF CONTINGENCY WASTE COLLECTION METHODS IF ANOTHER FAILURE OCCURRED. HOWEVER, THE NASA FMEA LISTED THESE AS A NON-MISSION ESSENTIAL FAILURE CRITICALITY.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2243X
NASA FMEA #: 06-2-0446-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2243
ITEM: BALLAST VALVE TO BALLAST CONTROL VALVE LINES AND
FITTINGS (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: EXTERNAL LEAKAGE
NASA FM: RESTRICTED FLOW / EXTERNAL LEAKAGE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2244X
NASA FMEA #: 06-2-0502-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2244
ITEM: THIGH BAR RESTRAINT (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: FAILS IN "IN-USE" POSITION

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2245X
NASA FMEA #: 06-2-0505-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2245
ITEM: WCS BYPASS SWITCH (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[X] *
IOA	[3 /2R]	[P]	[NA]	[P]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: SHORTED TO GROUND

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2246X
NASA FMEA #: 06-2-0436-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2246
ITEM: WASTE TANK INLET LINES AND FITTINGS (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA/NASA FM: RESTRICTED FLOW

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2247X
NASA FMEA #: 06-2-0437-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2247
ITEM: WASTE TANK OUTLET LINES AND FITTINGS

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2248X
NASA FMEA #: 06-2-0314-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2248
ITEM: HYDROPHOBIC FILTER (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2249X
NASA FMEA #: 06-2-0431-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2249
ITEM: CONTINGENCY CROSS-TIE QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[F]	[F]	[P]	[X] *
IOA	[3 /2R]	[F]	[F]	[P]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[F]	[F]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA/NASA FM: INTERNAL LEAKAGE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2250X
NASA FMEA #: 06-2-0431-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2250
ITEM: CONTINGENCY CROSS-TIE QD AND PLUG (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:
IOA/NASA FM: EXTERNAL LEAKAGE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2251X
NASA FMEA #: 05-6VC-2037-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2251
ITEM: WASTE DUMP VALVE SWITCH INDICATOR (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
IOA/NASA FM: FAILS OPEN

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2252X
NASA FMEA #: 05-6VC-2037-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2252
ITEM: WASTE DUMP VALVE SWITCH

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[1368HR]	[P]	[NA]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[NA]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: SHORTED TO GROUND
IOA COMMENT: THE FIRST FAILURE IS POTENTIAL PROBLEM IF VALVE
OPEN AT FAILURE BECAUSE OF LOST CONTINGENCY DUMP CAPABILITY.
POTENTIAL LOSS OF LIFE IF DUMP ISOLATION VALVE FAILS TO CLOSE IF
DUMP VALVE IS OPEN AT FAILURE, THUS CRITICALITY 2/1R PNP.

THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED
DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE
REDUNDANT PATHS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2253X
NASA FMEA #: 06-2-0215-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2253
ITEM: FAN/SEPARATOR INLET HOSE FROM COMMODE (2)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA FM: RESTRICTED/BLOCKED FLOW
NASA FM: RESTRICTED FLOW, EXTERNAL LEAKAGE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2254X
NASA FMEA #: 06-2-0221-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2254
ITEM: SCREEN, DOWNSTREAM OF BALLAST/REPRESS SCREEN (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED FLOW

IOA COMMENT: THE DISAGREEMENT IN THE REDUNDANCY SCREENS WAS DUE TO NO DETAILED DISCUSSION WITH THE NASA SUBSYSTEM MANAGERS REGARDING THE REDUNDANT PATHS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2255X
NASA FMEA #: 06-2-0439-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2255
ITEM: LINES AND FITTINGS, DUMP VALVE TO NOZZLE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: EXTERNAL LEAKAGE

IOA COMMENT: NO LOSS OF LIFE/VEHICLE SITUATION, HOWEVER COULD BE
LOSS OF MISSION DUE TO CONTAMINATION OF PAYLOADS.

THE EFFECTS OF WASTE WATER BEING DUMPED INTO THE CARGO BAY WAS
CONSIDERED TO BE A LOSS OF MISSION FOR THE IOA ANALYSIS, NOT THE
LOSS OF LIFE DESCRIBED BY THE NASA FMEA.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 12/22/87
ASSESSMENT ID: LS-2256X
NASA FMEA #: 06-2-0439-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2256
ITEM: LINES AND FITTINGS, DUMP VALVE TO NOZZLE (1)

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[NA]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [NA] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: RESTRICTED/BLOCKED FLOW
IOA COMMENT: THE RESTRICTED EXTERNAL DUMP LINE IS NOT A
LIFE/VEHICLE LOSS SITUATION, BUT COULD BE A LOSS OF MISSION IF
MISSION DURATION EXCEEDS FCB/UCD SUPPLIES OR THE SUPPLY WATER
DUMP LINE IS LOST.

THE EFFECTS OF WASTE WATER BEING DUMPED INTO THE CARGO BAY WAS
CONSIDERED TO BE A LOSS OF MISSION FOR THE IOA ANALYSIS, NOT THE
LOSS OF LIFE DESCRIBED BY THE NASA FMEA.

C.3

**SMOKE DETECTION/FIRE SUPPRESSION SUBSYSTEM
ASSESSMENT WORKSHEETS**

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3001
NASA FMEA #: 05-6V-2000-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3001
ITEM: CB-SMOKE DETN BAY 2A/3B, 1B/3A, 1A/2B (CB8, 7, 7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[NA]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [F] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

PER NSTS-222006 (CN 4) PARAGRAPH 2.3.5A SCREEN B FAILS BECAUSE THE SENSORS ARE OPERATING DURING LOS. VISUAL OPEN STATE OF CIRCUIT BREAKERS IS NOT CONSIDERED DETECTABLE. A POSSIBLE ADDITION TO THE SMOKE CONCENTRATION OUTPUT WOULD BE TO TRIGGER FDA IF THE OUTPUT FAILS TO ZERO, INDICATING LOSS OF POWER TO THE SENSOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3002
NASA FMEA #: 05-6V-2000-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3002
ITEM: CB-SMOKE DETN BAY 2A/3B, 1B/3A, 1A/2B (CB8, 7, 7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3003
NASA FMEA #: 05-6V-2000-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3003
ITEM: CB-SMOKE DETN L/R FLT DECK (CB7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[NA]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[F]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

PER NSTS-22206 (CN 4) PARAGRAPH 2.3.5A SCREEN B FAILS BECAUSE THE SENSORS ARE OPERATING DURING LOS. VISUAL OPEN STATE OF CIRCUIT BREAKERS IS NOT CONSIDERED DETECTABLE. A POSSIBLE ADDITION TO THE SMOKE CONCENTRATION OUTPUT WOULD BE TO TRIGGER FDA IF THE OUTPUT FAILS TO ZERO, INDICATING LOSS OF POWER TO SENSOR.

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3004
NASA FMEA #: 05-6V-2000-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3004
ITEM: CB-SMOKE DETN L/R FLT DECK (CB7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3005
NASA FMEA #: 05-6V-2000-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3005
ITEM: CB-SMOKE DETN CABIN (CB6)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[NA]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [F] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

PER NSTS-22206 (CN 4) PARAGRAPH 2.3.5A SCREEN B FAILS BECAUSE THE SENSORS ARE OPERATING DURING LOS. VISUAL OPEN STATE OF CIRCUIT BREAKERS IS NOT CONSIDERED DETECTABLE. A POSSIBLE ADDITION TO THE SMOKE CONCENTRATION OUTPUT WOULD BE TO TRIGGER FDA IF THE OUTPUT FAILS TO ZERO, INDICATING LOSS OF POWER TO THE SENSOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3006
NASA FMEA #: 05-6V-2000-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3006
ITEM: CB-SMOKE DETN CABIN (CB6)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3007
NASA FMEA #: 05-6V-2001-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3007
ITEM: CB-FIRE SUPPR, BAY 1, 2, 3 (CB8, 8, 9)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3008
NASA FMEA #: 05-6V-2001-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3008
ITEM: CB-FIRE SUPPR BAY 1, 2, 3 (CB8, 8, 9)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3009
NASA FMEA #: 05-6V-2078-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3009
ITEM: RESISTOR-A2R1, A2R2, A2R3 (5.1K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE IOA & NASA CRITICALITIES MATCH AS ASSESSED VIA NSTA 22206, BUT THE CIRCUIT DESIGN ALLOWS FOR CONCERN BASED UPON THE SCENERIO OF A FAILED OPEN RESISTOR AND BOTTLE LEAK CAN RESULT IN AN EMPTY BOTTLE THAT CANNOT BE DETECTED. THESE COMBINED FAILURES SHOULD BE NOTED VIA GROUND TEST, BUT AFTER AV BAY CLOSE OUT AND ON-ORBIT THE CREW AND FLIGHT CONTROLLERS HAVE NO INSIGHT TO THE TOTAL PROBLEM. THIS LEADS ONE TO CONSIDER THE CRITICALITY AS A 1R/2.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3010
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3010
ITEM: RESISTOR-A2R1, A2R2, A2R3 (5.1K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SHORTS (TO GROUND OR END-TO-END) ARE NOT CONSIDERED A CREDIBLE
FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3011
NASA FMEA #: 05-6V-2027-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3011
ITEM: SW-SMOKE DETECTION SENSOR RESET (S7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THIS FAILURE BY ITSELF IS ACTUALLY A 3/3. IF THE SENSORS ARE OUTPUTTING AN ALARM AND THIS SWITCH FAILS A RESET IF POSSIBLE USING THE ASSOCIATED CIRCUIT BREAKER (CYCLE POWER). THE COMPLICATION THAT INDICATES A 1R3 COMES IF THE BREAKER FAILS TO CLOSE WHEN CYCLED AND THE REDUNDANT SENSOR ALSO FAILS. THESE FAILURES RESULT IN THE LOSS OF CAPABILITY TO ANNUNCIATE A FIRE WITHIN THE AFFECTED AREA. THE INITIAL IOA ASSESSMENT WAS BASED UPON INFORMATION THAT CYCLING POWER DID NOT RESET THE SENSOR. IF THE SENSORS WERE EVER TRIGGERED WITHOUT A REAL FIRE CONDITION, SOME CAPABILITIES TO ANNUNCIATE A FIRE WOULD BE LOST AND SINCE THE SYSTEM IS AN EMERGENCY SYSTEM THE MISSION SHOULD BE TERMINATED TO ENSURE NO LOSS OF LIFE OR VEHICLE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3012
NASA FMEA #: 05-06-2027-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3012
ITEM: SW-SMOKE DETECTION SENSOR RESET (S7)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE SMOKE STATUS INDICATIONS ARE LOST FOR THE SENSORS ASSOCIATE WITH THE CLOSED CONTACTS (CONTINUOUS RESET ISSUED). POSSIBLE LOSS OF CREW/VEHICLE WITH LOSS OF ALL LIKE AND UNLIKE REDUNDANCY (ALL ALARM OUTPUTS).

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3013
NASA FMEA #: 05-6V-2029-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3013
ITEM: SW-SMOKE DETECTION CIRCUIT TEST (S8)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE IOA & NASA CRITICALITIES MATCH AS ASSESSED VIA NSTS 22206, BUT THE CIRCUIT DESIGN ALLOWS FOR CONCERN BASED UPON THE SCENERIO OF THE SWITCH SHORTED TO GROUND SO THAT THE CHANGE IN SUPPRESSANT CONTAINER PRESSURE CAN NOT BE ANNUNCIATED AND THE CONTAINER LEAKS BETWEEN THE GROUND CLOSEOUT AND THE NEXT SYSTEMS TEST. SEE ASSESSMENT LS-3015 FOR FURTHER DELINIATION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3013A
NASA FMEA #: 05-6V-2029-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3013
ITEM: SW-SMOKE DETECTION CIRCUIT TEST (S8)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE IOA & NASA CRITICALITIES MATCH AS ASSESSED VIA NSTS 22206,
BUT THE CIRCUIT DESIGN ALLOWS FOR CONCERN BASED UPON THE SCENERIO
OF THE SWITCH SHORTED TO GROUND SO THAT THE CHANGE IN SUPPRESSANT
CONTAINER PRESSURE CAN NOT BE ANNUNCIATED AND THE CONTAINER
LEAKS BETWEEN THE GROUND CLOSEOUT AND THE NEXT SYSTEMS TEST. SEE
ASSESSMENT LS-3015 FOR FURTHER DELINIATION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3014
NASA FMEA #: 05-6V-2029-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3014
ITEM: SW-SMOKE DETECTION CIRCUIT TEST (S8)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE SMOKE STATUS INDICATIONS ARE LOST FOR THE SENORS ASSOCIATED WITH THE CLOSED CONTACTS (SENSOR CONTINUOUSLY IN TEST). POSSIBLE LOSS OF CREW/VEHICLE WITH LOSS OF ALL LIKE AND UNLIKE REDUNDANCY (SENSOR SMOKE CONCENTRATION OUTPUT AND REDUNDANT SENSOR).

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3015
NASA FMEA #: 06-2-330003-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3015
ITEM: FIRE SUPPRESSANT PRESSURE SENSOR

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE IOA & NASA CRITICALITIES MATCH AS ASSESSED VIA NSTS 22206, BUT THE CIRCUIT DESIGN ALLOWS FOR CONCERN BASED UPON THE SCENERIO OF THE PRESSURE SWITCH FAILED SUCH THAT THE GROUND CANNOT BE REMOVED AND THEREFORE NO CHANGE IN PRESSURE INDICATED, AND A BOTTLE LEAK THAT CAN RESULT IN AN EMPTY BOTTLE THAT CANNOT BE DETECTED. THESE COMBINED FAILURES SHOULD BE DETECTED VIA GROUND TEST, BUT AFTER AV BAY CLOSEOUT AND ON-ORBIT CREW & FLIGHT CONTROLLERS HAVE NO INSIGHT TO THE TOTAL PROBLEM THE ONLY WAY THE SCENERIO IS DETECTED IS IF THE SUPPRESSANT IS REQUIRE TO PUT OUT A FIRE AND NO EFFECT IS GAINED BY ACTIVATING THE BOTTLE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3016
NASA FMEA #: 06-2-330003-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3016
ITEM: FIRE SUPPRESSANT PRESSURE SENSOR

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: LS-3017
NASA FMEA #: 05-6V-2255-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3017
ITEM: DIODE-A4CR1, A4CR2, A4CR3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THIS FAILURE BY ITSELF IS ACTUALLY A 3/3. IF THE SENSORS OUTPUTTING AN ALARM AND THIS SWITCH FAILS, A RESET IS POSSIBLE USING THIS ASSOCIATED CIRCUIT BREAKER (CYCLE POWER). THE COMPLICATION THAT INDICATES A 1R3 COMES IF THE BREAKER FAILS TO CLOSE WHEN CYCLED AND THE REDUNDANT SENSOR ALSO FAILS. THESE FAILURES RESULT IN THE LOSS OF CAPABILITY TO ANNUNCIATE A FIRE. THE DIODES COULD BE REMOVED AND IMPROVE CIRCUIT DESIGN SINCE THE RESET SWITCH ALSO PROVIDES CIRCUIT ISOLATION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: LS-3018
NASA FMEA #: 05-6V-2255-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3018
ITEM: DIODE-A4CR1, A4CR2, A4CR3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3019
NASA FMEA #: 05-6V-2252-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3019
ITEM: DIODE-A3CR1, A3CR2, A3CR3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3020
NASA FMEA #: 05-6V-2252-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3020
ITEM: DIODE-A3CR1, A3CR2, A3CR3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

A SHORT OF ONE DIODE AND A SHORT (CLOSED) OF THE RESET SWITCH CONTACT ASSOCIATED WITH THAT DIODE WOULD INHIBIT THE HARDWARE ALARM CIRCUIT FOR ALL SENSORS UNTIL THE APPROPRIATE CIRCUIT BREAKER WAS OPENED THEN ONLY TWO AV BAY SENSORS (NON-REDUNDANT) WOULD BE LOST.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3021
NASA FMEA #: 05-6V-2077-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3021
ITEM: RESISTOR-A1R12

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3022
NASA FMEA #: 05-6V-2077-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3022
ITEM: RESISTOR-A1R12

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3023
NASA FMEA #: 05-6V-2076-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3023
ITEM: RESISTOR A6R2, R4, R6, R8, R10, R14, R16, R18,
R20 (5.1K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3024
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3024
ITEM: RESISTOR A6R4, R6, R8, R10, R14, R16, R18, R20
(5.1K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SHORTS (TO GROUND OR END-TO-END) ARE NOT CONSIDERED A CREDIBLE
FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3025
NASA FMEA #: 05-6V-2076-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3025
ITEM: RESISTOR A6R2 (CABIN)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

RESISTOR ONLY EFFECTS TELEMETRY INDICATION TO THE GROUND. THIS COMPONENT WAS ORIGINALLY ANALYZED AS PART OF LS-3023. ALSO, A SHORT END-TO-END IS THE ONLY CREDIBLE FAILURE MODE RELATED TO A RESISTOR SHORT.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3026
NASA FMEA #: 05-6V-2074-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3026
ITEM: RESISTOR A6R1, R3, R5, R7, R9, R13, R15, R17, R19 (12K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3027
NASA FMEA #: 05-6V-2075-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3027
ITEM: RESISTOR A1R1, R2, R3, R4, R5, R8, R9, R10, R11
(1.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

THE ALARM STILL WILL BE ISSUED VIA THE SMOKE CONCENTRATION FDA
PARAMETER AND THE APPROPRIATE FIRE LIGHT WILL ILLUMINATE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3028
NASA FMEA #: 05-6V-2075-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3028
ITEM: RESISTOR A1R2, R3, R4, R5, R8, R9, R10, R11
(1.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

INITIAL IOA ANALYSIS BASE UPON A SHORT TO GROUND. A SHORT-TO-GROUND IS NOT CONSIDERED A CREDIBLE FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3029
NASA FMEA #: 05-6V-2075-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3029
ITEM: RESISTOR A1R1

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

INITIAL IOA ANALYSIS BASE UPON A SHORT TO GROUND. A SHORT-TO-GROUND IS NOT CONSIDERED A CREDIBLE FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3030
NASA FMEA #: 05-6V-2251-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3030
ITEM: DIODE A1CR1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] [D]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE IS DETECTED BY THE SMOKE DETECTOR CONCENTRATION FDA
ALERT AND SUBSEQUENT ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3031
NASA FMEA #: 05-6V-2251-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3031
ITEM: DIODE A1CR1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3032
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3032
ITEM: DIODE A1CR1, 2, 3, 4, 5, 8, 9, 10, 11

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

JANTXVIN4246 DIODE IS NOT CONSIDERED TO SHORT-TO-GROUND.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/08/88
ASSESSMENT ID: LS-3033
NASA FMEA #: 05-6V-2075-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3033
ITEM: RESISTOR A6R11, R12 (1.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THESE RESISTORS ONLY EFFECT THE PAYLOAD SMOKE DETECTION ALL OTHER ALARMS WORK TO INDIACATE THE FIRE. BUT THE LOSS OF ALL LIKE AND UNLIKE REDUNDANCY (ALL ALARM OUTPUTS) COULD POSSIBLY RESULT IN LOSS OF THE CREW/VEHCILE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3034
NASA FMEA #: 05-6V-2075-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3034
ITEM: RESISTOR A6R11, R12 (1.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

ANALYSIS WAS BASED ON RESISTOR SHORT TO GROUND. CREDIBLE FAILURE IS RESISTOR SHORT END-TO-END. THE EFFECT OF AN END-TO-END SHORT IS LOSS OF CURRENT LIMITED TO THE PAYLOAD OUTPUT DRIVER TO THE SHUTTLE SMOKE DETECTION LAMP.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3035
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3035
ITEM: RESISTOR A6R11, R12 (1.2K)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SHORTS (TO GROUND) ARE NOT CONSIDERED A CREDIBLE FAILURE FOR THIS
TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3036
NASA FMEA #: 05-6V-2251-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3036
ITEM: DIODE A6CR1, CR2

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

ALL OTHER ALARMS WORK TO INDICATE THE FIRE AND THE SOURCE CAN BE IDENTIFIED BY SUBSEQUENT ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3037
NASA FMEA #: 05-6V-2251-2

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3037
ITEM: DIODE A6CR1, CR2

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3038
NASA FMEA #: 05-6V-2074-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3038
ITEM: RESISTOR A1R6, R7 (12K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3039
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3039
ITEM: RESISTOR A1R6, R7 (12K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SHORTS (TO GROUND OR END-TO-END) ARE NOT CONSIDERED A CREDIBLE
FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3040
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3040
ITEM: ANNUNCIATOR CONTROL ASSEMBLY (ACA) 1 AND 2

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

BASED UPON LOSS OF ALL ALARM ANNUNCIATION REDUNDANCY (LIKE & UNLIKE) THE POSSIBILITY FOR LOSS OF CREW/VEHICLE EXISTS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3041
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3041
ITEM: ANNUNCIATOR CONTROL ASSEMBLY (ACA) 1 AND 2

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

LAMP ILLUMINATION WITH NO OTHER ALARMS ONLY REQUIRES ANALYSIS TO ENSURE NO FIRE EXISTS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3042
NASA FMEA #: 05-6V-2311-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3042
ITEM: SMOKE DETECTION LIGHT MATRIX-LAMPS

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FAILURE CAN BE DETECTED INFLIGHT WHEN ALARMS ANNUNCIATE THE FIRE
BUT LIGHT DOES NOT. SOFTWARE FDA PROVIDES SOURCE OF FIRE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3043
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3043
ITEM: C&W ELECTRONICS UNIT SIREN A & B

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

LOSS OF ALL REDUNDANCY (ALARM ANNUNCIATIONS) COULD RESULT IN LOSS OF CREW/VEHICLE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3044
NASA FMEA #: 05-6V-2026-4

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3044
ITEM: SWITCH-FIRE SUPPRESSION AV BAY 1, 2, 3 ARM/SAFE
(S1, 2, 3)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[P]	[P]	[P]	[X]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3045
NASA FMEA #: 05-6V-2071-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3045
ITEM: RESISTOR-NO IDENTIFIER (2.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3046
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3046
ITEM: RESISTOR-NO IDENTIFIER (2.2K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[1 /1]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SHORTS (TO GROUND OR END-TO-END) ARE NOT CONSIDERED A CREDIBLE
FAILURE FOR THIS TYPE RESISTOR.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3047
NASA FMEA #: 05-6V-2072-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3047
ITEM: RESISTOR-NO IDENTIFIER (1.8K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3048
NASA FMEA #: 05-6V-2028-4

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3048
ITEM: SWITCH-FIRE SUPPRESSION AV BAY 1, 2, 3 AGENT
DISCH (S4, S5, S6)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[P]	[P]	[P]	[X]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3049
NASA FMEA #: 05-06-2310-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3049
ITEM: LIGHT-FIRE SUPPRESSION AV BAY 1, 2, 3 AGENT
DISCH (S4, S5, S6)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE IOA ANALYSIS WORKSHEET ERRONEOUSLY LISTS THE FAILURE AS
PREMATURE OPERATION. THE FAILURE MODE SHOULD BE FAILS OPEN.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3050
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3050
ITEM: ANNUNCIATOR CONTROL ASSEMBLY (ACA) 3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FAILURE CAN BE DETECTED INFLIGHT WHEN ALARMS ANNUNCIATE THE FIRE
BUT LIGHT DOES NOT. SOFTWARE FDA PROVIDES SOURCE OF FIRE.
POSSIBLE LOSS OF CREW/VEHICLE IF ALL REDUNDANT ALARM ANNUNCIATION
IS LOST.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3051
NASA FMEA #: N/A

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3051
ITEM: ANNUNCIATOR CONTROL ASSEMBLY (ACA) 3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

LAMP ILLUMINATION WITH NO OTHER ALARMS ONLY REQUIRES ANALYSIS TO
ENSURE NO FIRE EXISTS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3052
NASA FMEA #: 05-06-2254-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3052
ITEM: DIODE-NO IDENTIFIER

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[] *
IOA	[1 /1]	[P]	[P]	[P]	[]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3053
NASA FMEA #: 05-06-2254-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3053
ITEM: DIODE-NO IDENTIFIER

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[N]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

A SHORT OF THIS DIODE HAS NO EFFECT ON THE FLIGHT CIRCUIT AND
WOULD ONLY ALLOW AN ERRORNEOUS TELEMETRY INDICATION IF THE
GROUND CIRCUIT IS ACTIVATED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/09/88
ASSESSMENT ID: LS-3054
NASA FMEA #: 05-6V-2253-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3054
ITEM: DIODE-NO IDENTIFIER

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[N]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

POST LAUNCH, OPEN ACTUALLY ISOLATES THE GROUND CIRCUIT BETTER THAN ANY OTHER CONDITION AND DOES NOT EFFECT THE FLIGHT CIRCUIT PRE-LAUNCH THE CIRCUIT PROVIDES CAPABILITY TO FIGHT A FIRE THROUGH GROUND COMMAND CAPABILITIES. THIS DIODE, THE ON BOARD CIRCUIT, AND THE PORTABLE BOTTLES MUST FAILS TO RESULT IN LOSS OF CREW/VEHICLE. CONSIDERATIONS OF PREMATURE FIRING ARE ACTUALLY A FAIL SAFE CONDITION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3055
NASA FMEA #: 05-6V-2073-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3055
ITEM: RESISTOR-NO IDENTIFIER (5.11K)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[N]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] [D]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE HAS NO EFFECT ON THE FLIGHT CIRCUIT THUS THE ONLY CONSIDERATION IS ON THE LAUNCH PAD. FAILURE OF THE GROUND SYSTEMS TO DISCHARGE THE SUPPRESSANT CONTAINER IS BACKED UP BY THE FLIGHT SYSTEM, PORTABLE BOTTLES, AND LAUNCH TOWER FIRE SYSTEMS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3056
NASA FMEA #: 05-6V-2302-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3056
ITEM: PYRO CONTROLLER NO. 1, 2, 3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[P]	[P]	[P]	[X]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/05/88
ASSESSMENT ID: LS-3057
NASA FMEA #: 05-6V-2302-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3057
ITEM: PYRO CONTROLLER NO. 1, 2, 3

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[N]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[1 /1] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

A PREMATURE OPERATION OF THIS CIRCUIT (SHORT INTERNAL) CAN INHIBIT THE ACTUAL FIRE VOLTAGE BY NOT ALLOWING THE CAPACITOR VOLTAGE TO BUILD UP. THUS THE WORST CASE CRITICALITY IS 1/1. IF THE NSI CAN FIRE AT A LOWER VOLTAGE OR IF THE FAILURE FIRES THE NSI PRIOR TO THE ACTUAL FIRE COMMAND THE FAILURE WOULD BE A CRITICALITY 3/3 SINCE THE DESIRE RESULTS ARE ACHIEVED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3058
NASA FMEA #: 06-2-311000-01

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3058
ITEM: SMOKE DETECTOR (9)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

MOST LOGICAL FAILURE IS THE LOSS OF FLOW TO THE SENSING CHAMBERS
SO THAT BOTH THE STATUS OUTPUT AND THE CONCENTRATION OUTPUT ARE
AFFECTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/10/88
ASSESSMENT ID: LS-3059
NASA FMEA #: 06-2-330001-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3059
ITEM: FIRE SUPPRESSANT ASSEMBLY (9)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THIS FAILURE REQUIRES MORE THOUGHT THAN ONE FMEA/CIL: 1) THE FAILURE BY ITSELF SHOULD BE INDICATED BY ILLUMINATION OF THE AGENT DISCHARGE LIGHT. UPON DISCHARGE (ASSUMING A HIGH LEAD RATE) THE AV BAY WOULD BE PROTECTED FOR UP TO 50 HRS. THUS THE FAILURE ONLY HAS MISSION TERMINATION EFFECTS AND LOSS OF CREW/VEHICLE ARE NOT THE CONCERN; 2) THE FAILURE ASSUMING A SLOW LEAK WOULD REDUCE THIS AV BAY PROTECTION TIME BUT DETECTION WOULD STILL BE INDICATED VIA THE AGENT DISCHARGE LIGHT. IF THE RATE IS SLOW ENOUGH IT WILL BE DETECTED BY GROUND CHECKOUT BETWEEN MISSION; 3) THE MAJOR PROBLEM IS IF FOLLOWING GROUND CHECKOUT THE RESISTOR THAT PROVIDES CURRENT LIMITING FOR THE CIRCUIT FAILS OPEN OR THE PRESSURE SWITCH CONTACT FAILS CLOSED, OR THE CIRCUIT IS SHORTED TO GROUND NO AGENT DISCHARGE LIGHT ILLUMINATION CAN TAKE PLACE AND THEN THIS FAILURE CAN BE CATASTROPHIC IF THE LEAK IS UNDETECTED AND COMPLETE PRIOR TO LIFT-OFF. THUS THE FAILURE WOULD APPEAR AS A 1R/2.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: LS-3060
NASA FMEA #: 06-2-330005-1

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3060
ITEM: FIRE SUPPRESSANT ASSEMBLY (9)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[] *
IOA	[1 /1]	[P]	[F]	[P]	[]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: LS-3060A
NASA FMEA #: 06-2-330005-2

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3060
ITEM: FIRE SUPPRESSANT ASSEMBLY (9)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[] *
IOA	[1 /1]	[P]	[F]	[P]	[]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: LS-3060B
NASA FMEA #: 06-2-330050-2

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3060
ITEM: FIRE SUPPRESSANT ASSEMBLY (9)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[] *
IOA	[1 /1]	[P]	[F]	[P]	[]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: LS-3061
NASA FMEA #: 06-2-371000-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3061
ITEM: PORTABLE FIRE SUPPRESSANT ASSEMBLY

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

LOSS OF ALL REDUNDANCY (ALL PORTABLE BOTTLES) COULD RESULT IN
LOSS OF CREW/VEHICLE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/11/88
ASSESSMENT ID: LS-3062
NASA FMEA #: 06-2-371000-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3062
ITEM: PORTABLE FIRE SUPPRESSANT ASSEMBLY

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[NA]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[N]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [F] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

A JAMMED ACTUATOR WILL BE KNOW IMMEDIATELY UPON USAGE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/88
ASSESSMENT ID: LS-3063
NASA FMEA #: 05-6V-2204-1

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3063
ITEM: HYBRID DRIVER (TYPE III) (3)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE HAS NO EFFECT ON THE FLIGHT CIRCUIT THUS THE ONLY CONSIDERATION IS ON THE LAUNCH PAD. FAILURE OF THE GROUND SYSTEMS TO DISCHARGE THE SUPPRESSANT CONTAINER IS BACKED UP BY THE FLIGHT SYSTEM, PORTABLE BOTTLES, AND LAUNCH TOWER FIRE SYSTEMS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3064
NASA FMEA #: 05-6V-2203-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3064
ITEM: HYBRID DRIVER (TYPE I) (3)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE HAS NO EFFECT ON THE FLIGHT CIRCUIT THUS THE ONLY CONSIDERATION IS ON THE LAUNCH PAD. FAILURE OF THE GROUND SYSTEMS TO DISCHARGE THE SUPPRESSANT CONTAINER IS BACKED UP BY THE FLIGHT SYSTEM, PORTABLE BOTTLES, AND LAUNCH TOWER FIRE SYSTEMS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3065
NASA FMEA #: 05-6V-2202-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3065
ITEM: HYBRID DRIVER (TYPE II) (3)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[P]	[P]	[P]	[X]
COMPARE	[/]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C
ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3112X
NASA FMEA #: 05-6V-2027-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3112
ITEM: SWITCH-SMOKE DETECTOR SENSOR RESET (57)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3114X
NASA FMEA #: 05-6V-2029-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3114
ITEM: SW-SMOKE DETECTOR CIRCUIT TEST (S8)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

EVEN WITH THE WORST CASE FAILURE REDUNDANT SENSING IS AVAILABLE
IN ALL AREAS. EACH SENSOR STILL PROVIDES SMOKE CONCENTRATION
DATA FOR FDA COMPUTATION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/09/88
ASSESSMENT ID: LS-3144X
NASA FMEA #: 05-06-2026-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3144
ITEM: SWITCH-FIRE SUPPRESSION AV BAY 1, 2, 3, ARM/SAFE
(S1,S2,S3)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/06/88
ASSESSMENT ID: LS-3148X
NASA FMEA #: 05-6V-2028-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3148
ITEM: SW-FIRE SUPPRESSION AV BAY 1, 2, 3 AGENT DISCH

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE [A]
INADEQUATE []

REMARKS:

THE FAILURE COUPLED WITH A FAILURE OF THE ONE SECOND TIME DELAY
CAN INHIBIT THE DISCHARGE OF THE FIRE SUPPRESSANT CONTAINER.
WORST CASE IS DURING ASCENT AND DEORBIT.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/09/88
ASSESSMENT ID: LS-3154X
NASA FMEA #: 05-6V-2253-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3154
ITEM: DIODE-NO IDENTIFIER

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[F]	[P]	[P]	[X]
COMPARE	[/]	[N]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [F] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE AS RUN GROUND TURNAROUND TEST UNDER MOST CONDITIONS WILL NOT
DETECT THE FAILURE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: LS-3158X
NASA FMEA #: 06-2-311000-02

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3158
ITEM: SMOKE DETECTOR (9)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/88
ASSESSMENT ID: LS-3163X
NASA FMEA #: 05-06-2204-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3163
ITEM: HYBRID DRIVER (TYPE III) (3)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/08/88
ASSESSMENT ID: LS-3164X
NASA FMEA #: 05-6V-2203-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3164
ITEM: HYBRID DRIVER (TYPE I) (3)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

PRELAUNCH PORTABLE BOTTLES ARE AVAILABLE TO DISCHARGE SUPPRESSANT INTO THE BAY. THIS IS ALSO TRUE FOR ONORBIT AND LANDING/SAFING. DURING LIFT OFF AND DEORBIT, A FAILURE OF THE PRE-FLIGHT BUS WOULD BE REQUIRED TO ISSUE THE COMMAND VIA THIS FAILURE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3165X
NASA FMEA #: 05-6V-2202-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3165
ITEM: HYBRID DRIVER (TYPE II) (3)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 / 1]	[]	[]	[]	[X] *
IOA	[1 / 1]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3166X
NASA FMEA #: 05-6V-2201-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3166
ITEM: HYBRID DRIVER (TYPE I) - SMOKE DETECTOR GROUND
RESET

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[D]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE IS DETECTABLE THROUGH THE REDUNDANT SENSING
CAPABILITY.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 1/07/88
ASSESSMENT ID: LS-3167X
NASA FMEA #: 05-6V-2201-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3167
ITEM: HYBRID DRIVER (TYPE I) - SMOKE DETECTOR GROUND
RESET

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: LS-3168X
NASA FMEA #: 06-2-330050-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3168
ITEM: NASA STANDARD INITIATOR

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE FAILURE WILL BE NOTED INFLIGHT WHEN THE AGENT DISCHARGE LIGHT
ILLUMINATES AND VIA THE TELEMETRY PARAMETER.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/15/88
ASSESSMENT ID: LS-3258X
NASA FMEA #: 06-2-311000-03

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3258
ITEM: SMOKE DETECTOR (9)

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[F]	[F]	[P]	[X]
COMPARE	[N /]	[N]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[F]	[F]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DURING GROUND TURNAROUND TEST THE ONLY TRUE TEST OF THE CONCENTRATION PARAMETER WOULD BE TO VERIFY A KNOWN CONCENTRATION LEVEL WHICH THE PROCEDURES DO NOT ATTEMPT. SIMILAR LOGIC APPLIES TO THE INFLIGHT CASE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 2/16/88
ASSESSMENT ID: LS-3268X
NASA FMEA #: 06-2-330050-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3268
ITEM: NASA STANDARD INITIATOR

LEAD ANALYST: J.D. ARBET

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[1 /1]	[]	[]	[]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

C.4

**AIRLOCK SUPPORT SYSTEM
ASSESSMENT WORKSHEETS**

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5001
NASA FMEA #: 05-6UA-2017-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5001
ITEM: VISUAL PRESSURE GAUGE

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5002
NASA FMEA #: 06-1-1207-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5002
ITEM: ECLSS H2O SUPPLY PRESS. SENSOR (V64-P0201A)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	--------	--------	--------	--------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5002. LOSS OF PRESSURE INDICATION DOES NOT
LEAD TO "DEADHEADING" OF FUEL CELLS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5003
NASA FMEA #: 06-1-1206-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5003
ITEM: EMU WATER SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5004
NASA FMEA #: 06-1-1206-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5004
ITEM: EMU WATER SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5004. LOSS OF THE FUNCTION TO SEAL THE WATER ON THE LINE DOES NOT LEAD TO LOSS OF FES. A REVALVING OF THE SUPPLY WATER SYSTEM WILL CORRECT THE FAILURE; HOWEVER EVA MISSIONS ARE STILL LOST.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5005
NASA FMEA #: 06-1-1206-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5005
ITEM: EMU WATER SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5005. LOSS OF THE FUNCTION TO SEAL THE WATER ON THE LINE DOES NOT LEAD TO LOSS OF FES. A REVALVING OF THE SUPPLY WATER SYSTEM WILL CORRECT THE FAILURE; HOWEVER EVA MISSIONS ARE STILL LOST.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	3/08/88	NASA DATA:
ASSESSMENT ID:	LS-5006	BASELINE []
NASA FMEA #:	05-6UA-2008-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5006
ITEM: EMU WATER SUPPLY SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SEE IOA ANALYSIS #5006. FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS OF DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5006A
NASA FMEA #: 05-6UA-2008-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5006
ITEM: EMU WATER SUPPLY SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[N]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5006. FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5007
NASA FMEA #: 05-6UA-2012-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5007
ITEM: EMU WATER SUPPLY STATUS INDICATOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:
ITEM IS NOT MISSION ESSENTIAL.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5008
NASA FMEA #: 05-6UA-2005-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5008
ITEM: RESISTOR (A1R1 AND A2R1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5009
NASA FMEA #: 05-6UA-2000-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5009
ITEM: EMU WATER SUPPLY CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SAME SCENARIO (WORST CASE) AS FOR VALVE FAILED CLOSED (#5003).
NASA DATA IS NOT AVAILABLE, BUT IOA & NASA'A CRITICALITIES ARE
CONSISTENT WITH #5003 & 06-1A-1206-1 THUS, THE ISSUE FOLLOWS THE
LOGIC OF ASSESSMENT #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5010
NASA FMEA #: 05-6UA-2000-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5010
ITEM: EMU WATER SUPPLY CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5011
NASA FMEA #: 06-1-1212-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5011
ITEM: EMU WASTE WATER VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5011. PRE 51-L ANALYSIS SAYS LOSS OF REDUNDANCY. HOWEVER, WITH TWO SUITED CREWMAN, THERE IS NO REDUNDANCY, THUS LOSS OF MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5012
NASA FMEA #: 06-1-1212-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5012
ITEM: EMU WASTE WATER VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5012. FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5013
NASA FMEA #: 06-1-1212-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5013
ITEM: EMU WASTE WATER VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL CRIT 2R IS USED DUE TO THE FREE WATER IN THE CABIN AND THE FACT THAT THE CREWMEN MAY NOT USE THE DRAIN TO SERVICE THE EMU WATER TANKS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5014
NASA FMEA #: 05-6UA-2009-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5014
ITEM: EMU WASTE WATER SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SAME SCENARIO (WORST CASE) AS FOR VALVE FAILED CLOSED (#5011),
(NASA 06-1-1212-1). WITH TWO SUITED CREWMAN THERE IS NO
REDUNDANCY THUS LOSS OF MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	3/08/88	NASA DATA:
ASSESSMENT ID:	LS-5014A	BASELINE []
NASA FMEA #:	05-6UA-2009-2	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5014
ITEM: EMU WASTE WATER SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SAME SCENARIO (WORST CASE) AS FOR VALVE FAILED CLOSED (#5011),
(NASA 06-1-1212-1). WITH TWO SUITED CREWMAN THERE IS NO
REDUNDANCY, THUS MISSION LOSS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5015
NASA FMEA #: 05-6UA-2013-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5015
ITEM: EMU WASTE WATER STATUS INDICATOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5016
NASA FMEA #: 05-6UA-2005-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5016
ITEM: RESISTOR (A1R2 AND A2R2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	--------	--------	--------	--------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88	NASA DATA:
ASSESSMENT ID: LS-5017	BASELINE []
NASA FMEA #: 05-6UA-2001-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5017
ITEM: EMU WASTE WATER CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS		CIL ITEM
		A	B	C
NASA	[3 /2R]	[P]	[NA]	[P]
IOA	[2 /2]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[]	[]	[]
						(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SEE IOA ANALYSIS #5017. ASSUMING TWO CREWMEN THERE IS NO REDUNDANCY FOR EACH CREWMEN. THUS LOSS OF CB FORCES THE VALVE TO REMAIN CLOSED AND LOSS OF MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5018
NASA FMEA #: 05-6UA-2001-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5018
ITEM: EMU WASTE WATER CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5019
NASA FMEA #: 06-1-1210-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5019
ITEM: EMU WATER SUPPLY AND WASTE COUPLINGS

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/NA]	[]	[]	[]	[] *
IOA	[2 /2]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

HARDWARE HAS BEEN DELETED AND IS NOT FLOWN. (PER H. ROTTER PRCB
PRESENTATION SSV-87-92)

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5020
NASA FMEA #: 06-1-1208-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5020
ITEM: EMU WATER SUPPLY LINES AND FITTING

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5020. FUNCTIONAL LOSS LEADS TO INABILITY TO SERVICE THE EMU'S. HOWEVER, AIRLOCK IS NOT AN EMERGENCY ITEM. FOR FURTHER EXPLANATION SEE ASSESSMENT #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88	NASA DATA:
ASSESSMENT ID: LS-5021	BASELINE []
NASA FMEA #: 06-1-1209-1	NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5021
ITEM: EMU WASTE WATER LINES AND FITTINGS

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[] (ADD/DELETE)
-----------	-------	-------	-------	------------------------

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SEE IOA ANALYSIS #5021. FUNCTIONAL LOSS LEADS TO INABILITY TO SERVICE THE EMU'S.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5022
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5022
ITEM: O2 SUPPLY LINES AND FITTINGS

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

NO EXISTING EQUIVALENT NASA FMEA WAS FOUND FOR THIS FAILURE (SEE IOA ANALYSIS #5022).

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5023
NASA FMEA #: 05-6UA-2016-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5023
ITEM: VISUAL O2 PRESSURE GAUGE (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] [] (ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5024
NASA FMEA #: 06-1-1202-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5024
ITEM: O2 SUPPLY PRESSURE SENSOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	--------	--------	--------	--------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5025
NASA FMEA #: 06-1-1201-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5025
ITEM: EMU O2 SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5025. ASSUMING A BASELINE OF TWO SUITED CREWMEMBERS AND NO CREW ACTION (RULE 2.3.3.f OF NSTS 22206). TWO CREWMEMBERS SHARING ONE SCU IS NOT A "NOMINAL CREW ACTION", THUS LOSS OF MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5026
NASA FMEA #: 06-1-1201-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5026
ITEM: EMU O2 SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

SEE IOA ANALYSIS #5026. LOSS OF O2 ISOLATION FUNCTION LEADS TO LOSS OF EVA AND SHUTTLE MISSION. THIS IS BECAUSE LV3 AND LV4 WOULD BE CLOSED, AND THIS ACTION ISOLATES THE LEH'S. THUS, UPON FUNCTION LOSS, THE MISSION IS TERMINATED AND DEORBIT PLANNED FOR THE NEXT PLS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5027
NASA FMEA #: 06-1-1201-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5027
ITEM: EMU O2 SUPPLY VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[1 /1]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FURTHER TO IOA ANALYSIS #5027. SHUTTLE MISSION IS LOST AND UNDER WORST CASE SCENARIO AN AOA CAN BE PERFORMED. HIGH PP02 CREATES A FIRE HAZARD WHICH HAS THE POTENTIAL FOR LOSS OF LIFE/VEHICLE. THERE IS NO LOSS OF O2 TO LEH'S IF SYSTEM IS KEPT OPEN, THAT IS, O2 WILL BE DISTRIBUTED ACROSS THE SYSTEM PER BERNOULLIS EQUATION. THE ENVIRONMENT PRESSURE IS THE SAME FOR ALL PARTS OF THIS SYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5028
NASA FMEA #: 06-1-1205-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5028
ITEM: EMU O2 SUPPLY COUPLINGS

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5029
NASA FMEA #: 06-1-1128-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5029
ITEM: DEPRESS CAP VENT (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5030
NASA FMEA #: 06-1-1127-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5030
ITEM: CAP VENT DEBRIS SCREEN (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5031
NASA FMEA #: 06-1-1127-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5031
ITEM: CAP VENT DEBRIS SCREEN (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5032
NASA FMEA #: 06-1-1128-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5032
ITEM: DEPRESS VALVE/CAP (1 EACH)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[F]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[/]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[F]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5032A
NASA FMEA #: 06-1-1126-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5032
ITEM: DEPRESS VALVE/CAP (1 EACH)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[P]	[P]	[]
COMPARE	[N /]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[F]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5033
NASA FMEA #: 06-1-1126-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5033
ITEM: DEPRESS VALVE (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION. THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS 22206. FOR WORST CASE ANALYSIS SEE IOA ANALYSIS #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5034
NASA FMEA #: 06-1-1126-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5034
ITEM: DEPRESS VALVE/CAP (1 EACH)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[]
-----------	-------	-------	-------	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5034. FUNCTIONAL LOSS OF VENTING VIA THE VACUUM VENT LINE ALSO PRECLUDES REPRESSURIZING THE AIRLOCK. HOWEVER, THE DEPRESSURIZATION VALVE LEAKS 0.1 PSI PER SECOND, WHILE BOTH EQUALIZATION VALVES OPEN ON PRESSURE AT A RATE OF 0.5 PSI PER SECOND.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5034A
NASA FMEA #: 06-1-1128-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5034
ITEM: DEPRESS VALVE/CAP (1 EACH)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5034. FUNCTIONAL LOSS OF VENTING VIA THE VACUUM VENT LINE ALSO PRECLUDES REPRESSURIZING THE AIRLOCK. HOWEVER, THE DEPRESSURIZATION VALVE LEAKS 0.1 PSI PER SECOND, WHILE BOTH EQUALIZATION VALVES OPEN ON PRESSURE AT A RATE OF 0.5 PSI PER SECOND.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5035
NASA FMEA #: 06-1-1603-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5035
ITEM: AIRLOCK TO CABIN VENT CAP (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5035. NASA FMEA NOT AVAILABLE. HOWEVER, THERE ARE ONLY TWO EQUALIZATION VALVES, THUS ONLY TWO PIECES OF HARDWARE THAT CAN ALLOW REPRESSURIZATION OF THE AIRLOCK AFTER AN EVA.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5035A
NASA FMEA #: 06-1-1603-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5035
ITEM: AIRLOCK TO CABIN VENT CAP (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5035. NASA FMEA NOT AVAILABLE. HOWEVER, THERE ARE ONLY TWO EQUALIZATION VALVES, THUS ONLY TWO PIECES OF HARDWARE THAT CAN ALLOW REPRESSURIZATION OF THE AIRLOCK AFTER AN EVA.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5036
NASA FMEA #: 06-1-1603-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5036
ITEM: AIRLOCK TO CABIN VENT CAP (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FUNCTIONAL LOSS IS LOSS OF MISSION SINCE THE VALVE IS AN UNLIKE REDUNDANCY TO THE CAP. HOWEVER THE AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. FOR FURTHER CLARIFICATION SEE ASSESSMENT #LS-5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5037
NASA FMEA #: 06-1-1602-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5037
ITEM: AIRLOCK TO CABIN FILTER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R] [P] [NA] [P] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5038
NASA FMEA #: 01-1-1602-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5038
ITEM: AIRLOCK TO CABIN FILTER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

FAILURE IS QUESTIONABLE. LOSS OF FILTERATION DOES NOT CAUSES
VALVE FAILURE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5039
NASA FMEA #: 06-1-1601-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5039
ITEM: AIRLOCK TO CABIN EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[NA]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:
NONE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5040
NASA FMEA #: 06-1-1601-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5040
ITEM: AIRLOCK TO CABIN EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

WORST CASE SCENARIO HARDWARE LOSS IS VALVE OPEN, CAP DOES NOT MATE. EVA MISSION IS CALLED SHORT/OFF AND FURTHER MISSIONS ARE CANCELLED. THUS FUNCTION LOSS IS LOSS OF EVA MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5041
NASA FMEA #: 06-1-1601-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5041
ITEM: AIRLOCK TO CABIN EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES NSTS 22206. FOR IOA ANALYSIS SEE THE LIFE SUPPORT ID# 5041.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5042
NASA FMEA #: 06-1-1604-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5042
ITEM: AIRLOCK TO CABIN PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5042A
NASA FMEA #: 06-1-1605-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5042
ITEM: AIRLOCK TO CABIN PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5043
NASA FMEA #: 06-1-1604-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5043
ITEM: AIRLOCK TO CABIN PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

WORST CASE SCENARIO HARDWARE LOSS IS VALVE OPEN, CAP DOES NOT MATE. EVA MISSION IS CALLED SHORT/OFF AND FURTHER MISSIONS ARE CANCELLED. THUS FUNCTION LOSS IS LOSS OF EVA MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5043A
NASA FMEA #: 06-1-1605-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5043
ITEM: AIRLOCK TO CABIN PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

WORST CASE SCENARIO HARDWARE LOSS IS VALVE OPEN, CAP DOES NOT MATE. EVA MISSION IS CALLED SHORT/OFF AND FURTHER MISSIONS ARE CANCELLED. THUS FUNCTION LOSS IS LOSS OF EVA MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5044
NASA FMEA #: 06-1-1104-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5044
ITEM: AIRLOCK DIFFERENTIAL PRESSURE SENSOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5044A
NASA FMEA #: 06-1-1114-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5044
ITEM: AIRLOCK DIFFERENTIAL PRESSURE SENSOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5045
NASA FMEA #: 06-1-1632-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5045
ITEM: AIRLOCK WALL TEMPERATURE SENSOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5046
NASA FMEA #: 06-1-1124-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5046
ITEM: AIRLOCK TO AMBIENT VENT CAP (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES NSTS 22206. FOR IOA ANALYSIS SEE THE LIFE SUPPORT ID#5041.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5047
NASA FMEA #: 06-1-1124-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5047
ITEM: AIRLOCK TO AMBIENT VENT CAP (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	--------	--------	--------	--------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5048
NASA FMEA #: 06-1-1123-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5048
ITEM: AIRLOCK TO AMBIENT FILTER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES NSTS 22206. FOR IOA ANALYSIS SEE THE LIFE SUPPORT ID# 5041.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5049
NASA FMEA #: 06-1-1123-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5049
ITEM: AIRLOCK TO AMBIENT FILTER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]	(ADD/DELETE)
----------	-----	-----	-----	-----	--------------

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5049. FAILURE IS QUESTIONABLE. LOSS OF
FILTRATION DOES NOT CAUSE VALVE TO FAIL OPEN.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5050
NASA FMEA #: 06-1-1122-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5050
ITEM: AIRLOCK TO AMBIENT EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSURING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES NSTS 22206. FOR IOA ANALYSIS SEE THE LIFE SUPPORT ID#5041.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5051
NASA FMEA #: 06-1-1122-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5051
ITEM: AIRLOCK TO AMBIENT EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
----------	-----	-----	-----	-------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA ANALYSIS #5041 ASSUMED THE TUNNEL ADAPTER WAS ATTACHED. WITHOUT THIS THE AIRLOCK WOULD LEAK TO SPACE FORCING EVALUATION BY THE AIRLOCK CREW. THE LEAK CANNOT BE GREATER THAN TWO EQUALIZATION VALVES WIDE OPEN ON THE CABIN SIDE. EACH VALVE ALSO HAS A THREATENED CAP WHICH IS CAPABLE OF A PRESSURE SEAL. WORST CASE SCENARIO IS LOSS OF FURTHER MISSIONS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5052
NASA FMEA #: 06-1-1122-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5052
ITEM: AIRLOCK TO AMBIENT EQUALIZATION VALVE (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

AIRLOCK IS NOT AN EMERGENCY PIECE OF EQUIPMENT. ASSUMING AN EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE LATTER IS A SECOND FAILURE WHICH VIOLATES NSTS 22206. FOR IOA ANALYSIS SEE THE LIFE SUPPORT ID# 5041.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5053
NASA FMEA #: 06-1-1120-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5053
ITEM: AIRLOCK TO AMBIENT PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

CREW INCONVENIENCE. SEE IOA ANALYSIS # 5042.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE:	3/08/88	NASA DATA:
ASSESSMENT ID:	LS-5053A	BASELINE []
NASA FMEA #:	06-1-1121-1	NEW [X]
SUBSYSTEM:	LIFE SUPPORT	
MDAC ID:	5053	
ITEM:	AIRLOCK TO AMBIENT PRESSURE DIFFERENTIAL (2)	
LEAD ANALYST:	R.E. DUFFY	

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE	[]
INADEQUATE	[]

REMARKS:

CREW INCONVENIENCE. SEE IOA ANALYSIS # 5042.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5054
NASA FMEA #: 06-1-1120-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5054
ITEM: AIRLOCK TO AMBIENT PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
-----------	-------	-------	-------	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5054A
NASA FMEA #: 06-1-1121-4

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5054
ITEM: AIRLOCK TO AMBIENT PRESSURE DIFFERENTIAL (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /2]	[]	[]	[]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5055
NASA FMEA #: 05-6UA-2008-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5055
ITEM: EMU POWER/BATTERY CHARGER BUS SELECT SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED. THERE IS NO REDUNDANCY TO EACH OF THE SWITCH/SYSTEMS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5055A
NASA FMEA #: 05-6UA-2008-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5055
ITEM: EMU POWER/BATTERY CHARGER BUS SELECT SWITCH (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED. THERE IS NO REDUNDANCY TO EACH OF THE SWITCH/SYSTEMS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5056
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5056
ITEM: EMU POWER/BATTERY CHARGER RPC (4)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5057
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5057
ITEM: EMU POWER/BATTERY CHARGER DIODE (4)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5058
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5058
ITEM: EMU POWER/BATTERY CHARGER DIODE (4)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /2R] [P] [P] [P] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5059
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5059
ITEM: EMU POWER/BATTERY CHARGER POWER SUPPLY (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 / 2]	[]	[]	[]	[X]
COMPARE	[N / N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 / 2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5060
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5060
ITEM: EMU POWER/BATTERY CHARGER POWER SUPPLY (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5061
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5061
ITEM: EMU INPUT SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
-----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5062
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5062
ITEM: EMU VOLT/CURRENT INDICATOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5063
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5063
ITEM: EMU POWER SUPPLY CURRENT SENSOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5064
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5064
ITEM: EMU POWER SUPPLY VOLTAGE SENSOR

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5065
NASA FMEA #: 06-1-1631-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5065
ITEM: VACUUM VENT ISOLATION VALVE (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /2R]	[P]	[P]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

SEE IOA ANALYSIS #5065. IN ADDITION, THE VALVES BUTTERFLY HAS A PURGE HOLE TO PREVENT BUILD-UP OF GASES IN THE DUCT. ASSIGNED CRITICALITY HAS TO RESTRICT ITSELF TO THE CONSEQUENCES OF THE PRESENT FAILURE. WORST CASE SCENARIO SHOWS THAT THE LOSS OF THE FUNCTION TO "VENT" WILL LEAD TO THE INABILITY TO DEPRESSURIZE THE AIRLOCK.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5066
NASA FMEA #: 06-1-1631-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5066
ITEM: VACUUM VENT ISOLATION VALVE (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[2 /1R]	[P]	[F]	[P]	[X]
COMPARE	[/]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[F]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5067
NASA FMEA #: 05-6VC-2026-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5067
ITEM: VACUUM VENT ISOL. VLV. CNTRL. SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /1R]	[P]	[F]	[P]	[]
COMPARE	[N /]	[]	[N]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

IOA COMMENT: THE LOSS OF THE VACUUM VENT ISOLATION VALVE CONTROLS WAS NOT CONSIDERED BY THE IOA TO BE AN IMMEDIATE LOSS OF MISSION, AS IT WAS FOR THE NASA FMEA, BUT A NON-MISSION ESSENTIAL EFFECT FOR THE FIRST FAILURE IN THE IOA ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5068
NASA FMEA #: 05-6VC-2026-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5068
ITEM: VACUUM VENT ISOL. VLV. CNTRL. SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

IOA COMMENT: THE LOSS OF THE VACUUM VENT ISOLATION VALVE CONTROLS WAS NOT CONSIDERED BY THE IOA TO BE AN IMMEDIATE LOSS OF MISSION, AS IT WAS FOR THE NASA FMEA, BUT A NON-MISSION ESSENTIAL EFFECT FOR THE FIRST FAILURE IN THE IOA ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5068A
NASA FMEA #: 05-6VC-2026-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5068
ITEM: VACUUM VENT ISOL. VLV. CNTRL. SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[N /N]	[]	[]	[]	[N]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

IOA COMMENT: THE LOSS OF THE VACUUM VENT ISOLATION VALVE CONTROLS WAS NOT CONSIDERED BY THE IOA TO BE AN IMMEDIATE LOSS OF MISSION, AS IT WAS FOR THE NASA FMEA, BUT A NON-MISSION ESSENTIAL EFFECT FOR THE FIRST FAILURE IN THE IOA ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5069
NASA FMEA #: 05-6VC-2027-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5069
ITEM: VACUUM VENT ISOL. VLV. BUS SELECT SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /1R]	[P]	[F]	[P]	[]
COMPARE	[N /]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

IOA COMMENT: THE LOSS OF THE VACUUM VENT ISOLATION VALVE CONTROLS WAS NOT CONSIDERED BY THE IOA TO BE AN IMMEDIATE LOSS OF MISSION, AS IT WAS FOR THE NASA FMEA, BUT A NON-MISSION ESSENTIAL EFFECT FOR THE FIRST FAILURE IN THE IOA ANALYSIS.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5070
NASA FMEA #: 05-6VC-2027-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5070
ITEM: VACUUM VENT ISOL. VLV. BUS SELECT SWITCH (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[NA]	[P]	[]
-----------	-------	-------	-------	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5071
NASA FMEA #: 05-6VC-2005-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5071
ITEM: VACUUM VENT ISOL. VLV. CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[]	[N]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5072
NASA FMEA #: 05-6VC-2005-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5072
ITEM: VACUUM VENT ISOL. VLV. CIRCUIT BREAKER (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /2R]	[P]	[P]	[P]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /1R]	[P]	[NA]	[P]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA COMMENT: WITH THE LOSS OF THE CIRCUIT BREAKER A CONDITION OF "NO MISSION EFFECT" OCCURS. HOWEVER, IF A SUBSEQUENT FAILURE OCCURS IN THE VACUUM VENT SUBSYSTEM THAN A HAZARDOUS ENVIROMENT OF HYDROGEN COULD BE PRODUCED, CREATING A CRITICALITY OF 3/1R.

DUE TO THE LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5073
NASA FMEA #: 05-6VC-2032-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5073
ITEM: VACUUM VENT ISOL. VLV. CONTROL DIODES (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5073A
NASA FMEA #: 05-6VC-2032-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5073
ITEM: VACUUM VENT ISOL. VLV. CONTROL DIODES (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5074
NASA FMEA #: 05-6VC-2030-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5074
ITEM: BUS ISOLATION DIODES (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
-----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5075
NASA FMEA #: 05-6VC-2030-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5075
ITEM: BUS ISOLATION DIODES (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5076
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5076
ITEM: BUS SELECT SENSOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	-----	-----	-----	-----

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5077
NASA FMEA #: 05-6VC-2033-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5077
ITEM: CONTROL VALVE SWITCH INDICATOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5077A
NASA FMEA #: 05-6VC-2033-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5077
ITEM: CONTROL VALVE SWITCH INDICATOR (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
 ASSESSMENT ID: LS-5078
 NASA FMEA #: 05-6VC-2033-1

NASA DATA:
 BASELINE []
 NEW [X]

SUBSYSTEM: LIFE SUPPORT
 MDAC ID: 5078
 ITEM: VACUUM VENT BARBER POLE INDICATOR (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
 INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5078A
NASA FMEA #: 05-6VC-2033-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5078
ITEM: VACUUM VENT BARBER POLE INDICATOR (1)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5079
NASA FMEA #: 05-6VC-2045-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5079
ITEM: ISOL. VALVE SWITCH SENSOR RESISTOR (A8R5 AND A8R6) (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5080
NASA FMEA #: 05-6VC-2043-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5080
ITEM: BUS SELECT SWITCH SENSOR RESISTORS (A8R1 AND A8R2) (2)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 / 3]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5081
NASA FMEA #: 05-6VC-2044-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5081
ITEM: ISOL. VALVE SENSOR POWER RESISTOR (A8R3 & 4)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE INTEGRATED SCHEMATIC RESISTOR VALUES ARE IN ERROR. THE VALUE SHOULD BE 1.2K OHM, INSTEAD OF THE 5.1K OHM SHOWN FOR THE SCHEMATIC. DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5081A
NASA FMEA #: 05-6VC-2044-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5081
ITEM: ISOL. VALVE SENSOR POWER RESISTOR (A8R3 & 4)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THE INTEGRATED SCHEMATIC RESISTOR VALUES ARE IN ERROR. THE VALUE SHOULD BE 1.2K OHM, INSTEAD OF THE 5.1K OHM SHOWN FOR THE SCHEMATIC. DUE TO LIMITED NASA FMEA DATA (ONLY A CRITICALITY SUMMARY WAS AVAILABLE FOR THE POST 51-L NASA ANALYSIS), NO DETAIL ASSESSMENT OF THIS ITEM WAS ATTEMPTED.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5082
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5082
ITEM: DEDICATED SIGNAL CONDITIONER (83V75A18)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 / 3]	[]	[]	[]	[]
COMPARE	[N / N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 / 3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5083
NASA FMEA #:

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5083
ITEM: DEDICATED SIGNAL CONDITIONER (83V75A16)

LEAD ANALYST: R.E. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[/]	[]	[]	[]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

THERE WAS NO NASA ALSS FMEA WHICH MATCHED THE IOA DESCRIPTION.
THE NASA ANALYSIS MAY BE COMBINED WITH SOME OTHER HARDWARE OR
REALLOCATED TO ANOTHER SUBSYSTEM.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5085X
NASA FMEA #: 05-6UA-2012-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5085
ITEM: EMU WATER SUPPLY STATUS INDICATOR (2)

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(SHORTS TO GROUND)

WITH LINE SHORTED TO GROUND, AS THE SWITCH IS MADE, THE BREAKER WILL OPEN DUE TO HIGH DEMAND AND THE VALVE WILL NOT ACTUATE. EMU SUIT CAN NOT BE SERVICED, THUS LOSS OF MISSION. FURTHER ASSESSMENT CANNOT BE MADE DUE TO LACK OF NASA FMEA DATA.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5086X
NASA FMEA #: 05-6UA-2013-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5086
ITEM: EMU WASTE WATER STATUS INDICATOR

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(SHORTS TO GROUND)

WITH THE LINE SHORTED TO GROUND, AS THE SWITCH IS MADE, THE BREAKER WILL OPEN DUE TO HIGH DEMAND, AND THE VALVE WILL NOT ACTUATE. EMU SUIT CANNOT BE SERVICED, THUS LOSS OF MISSION. FURTHER ASSESSMENT CANNOT BE MADE DUE TO LACK IF NASA FMEA DATA.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5087X
NASA FMEA #: 06-1-1208-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5087
ITEM: EMU WATER SUPPLY LINES & FITTINGS

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(RESTRICTED FLOW)

FUNCTIONAL LOSS LEADS TO INABILITY TO SERVICE THE EMU'S.
HOWEVER, THE AIRLOCK IS NOT AN EMERGENCY ITEM. ASSUMING AN
EMERGENCY EVA LOSS DUE TO THIS FAILURE IS NOT CORRECT BECAUSE THE
LATTER IS A SECOND FAILURE WHICH VIOLATES SPECIFICATION NSTS
22206.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5088X
NASA FMEA #: 06-1-1402-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5088
ITEM: LCG SUPPLY & RETURN, LINES & FITTINGS

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[NA]	[P]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(EXTERNAL LEAK)
LOSS OF MISSION DUE TO INABILITY TO PERFORM FUNCTION. ASSUMING A TWO MAN CREW (BASELINE MISSION), RECOVERY CANNOT BE PERFORMED SINCE EACH SCU CONNECTION HAS NO REDUNDANCY AND SHARING ONE SCU WOULD BE CREW ACTION WHICH IS AGAINST SPEC NSTS 22206. THE AIRLOCK IS NOT AN EMERGENCY ITEM. FOR FURTHER CLARIFICATION SEE ASSESSMENT #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5089X
NASA FMEA #: 06-1-1402-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5089
ITEM: LCG SUPPLY & RETURN, LINES & FITTINGS

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(RESTRICTED FLOW)

LOSS OF MISSION DUE TO INABILITY TO PERFORM FUNCTION. ASSUMING A TWO MAN CREW (BASELINE MISSION), RECOVERY CANNOT BE PERFORMED SINCE EACH SCU CONNECTION HAS NO REDUNDANCY AND SHARING ONE SCU WOULD BE CREW ACTION WHICH IS AGAINST SPEC NSTS 22206. THE AIRLOCK IS NOT AN EMERGENCY ITEM. FOR FURTHER CLARIFICATION SEE ASSESSMENT #5003.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5090X
NASA FMEA #: 06-1-1209-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5090
ITEM: EMU WASTE WATER LINE & FITTINGS

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /2R]	[P]	[NA]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(RESTRICTED FLOW)

ASSUMING A TWO MAN CREW, THE FAILURE CAUSES LOSS OF MISSION SINCE
THERE IS NO REDUNDANCY FOR EACH CREWMAN.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5091X
NASA FMEA #: 06-1-1205-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5091
ITEM: O2 QUICK COUPLINGS (NOT USED FOR SCU) AND CAP

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[F]	[NA]	[P]	[X] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[3 /3]	[]	[]	[]	[]
----------	--------	--------	--------	--------

(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(INABILITY TO CLOSE, INTERNAL LEAKAGE)
THE HARDWARE ITEMS TO PREVENT LEAKS ARE THE VALVE, COUPLING AND CAP. FUNCTIONALLY THIS FAILURE IS NOT IMPORTANT SINCE BY DEFINITION THIS LEAK IS "INTERNAL". THUS THE CREW IS NOT EVEN AWARE OF THIS FAILURE. THAT IS, BY DEFINITION "INTERNAL LEAK" MEANS NOT ALL THE SEALS CAN FAIL (THIS WOULD BE EXTERNAL LEAKAGE). INABILITY TO CLOSE IS MOOT SINCE THE CAP WOULD NEVER BE TAKEN OFF DURING FLIGHT (CREW USES THE SCU).

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5092X
NASA FMEA #: 06-1-1205-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5092
ITEM: O2 QUICK COUPLING AND CAP (NOT USED FOR SCU)

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /3]	[]	[]	[]	[] *
IOA	[/NA]	[]	[]	[]	[]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(INABILITY TO OPEN)

THIS FAILURE IS MOOT SINCE THE COUPLINGS ARE NEVER USED DURING FLIGHT.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5093X
NASA FMEA #: 06-1-1127-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5093
ITEM: CAP VENT DEBRIS SCREEN

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[3 /3]	[]	[]	[]	[]
COMPARE	[/N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[3 /3] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(DAMAGED ELEMENT, OPEN)

THIS FAILURE IS QUESTIONABLE. LOSS OF FILTRATION DOES NOT CAUSE VALVE FAILURE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5094X
NASA FMEA #: 06-1-1124-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5094
ITEM: AIRLOCK TO AMBIENT CAP

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[F]	[P]	[X] *
IOA	[/NA]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(EXTERNAL LEAK)
THIS FAILURE IS NOT REALISTIC SINCE THIS VALVES WOULD NOT BE USED
DURING A NORMAL MISSION.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5095X
NASA FMEA #: 06-1-1631-3

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5095
ITEM: VACUUM VENT ISOLATION VALVE (1)

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[]	[]	[]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /2]	[]	[]	[]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(EXTERNAL LEAK)
THE FAILURE IS QUESTIONABLE. PER NSTS 22206 THE LEAK CANNOT BE THROUGH THE PACKING IN THE VALVES PENETRATION. THE ONLY OTHER PLACES COULD BE THE CASING ITSELF WHICH IS UNREALISTIC OR THE O-RING WHICH SEALS THE VALVE TO THE BULKHEAD. THE O-RING (LACK OF) IS NOT BIG ENOUGH TO DRAIN THE CABIN FASTER THAN CONSUMMABLES FLOW. HOWEVER, ASSUMING CREW INABILITY TO CORRECT THE FAILURE LEADS TO THE ASSIGNMENT OF AN IMMEDIATE LOSS OF MISSION DUE TO AN UNCONTROLLABLE

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5096X
NASA FMEA #: 06-1-1630-1

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5096
ITEM: LINES & FITTINGS, 2 INCH DEPRESSURIZATION

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[1 /1]	[]	[]	[]	[X] *
IOA	[2 /1R]	[P]	[P]	[P]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[]

RECOMMENDATIONS: (If different from NASA)

[2 /1R]	[P]	[P]	[P]	[A]
				(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(EXTERNAL LEAKAGE)

THE LEAK CAN BE CONTROLLED WITH THE VACUUM VENT ISOLATION VALVE. LOSS OF FUNCTION CREATES A LEAK IN THE CABIN WITH POTENTIAL LOSS OF LIFE/VEHICLE. EVEN THOUGH THE VACUUM ISOLATION VALVE HAS A DRAIN ORIFICE, THERE IS A POTENTIAL BUILD UP OF H2 IF THE LEAK IS DOWNSTREAM OF THE INTERFACE, WHICH ALSO HAS THE POTENTIAL FOR LOSS OF LIFE/VEHICLE IF H2 IGNITES. THUS, MISSION IS TERMINATED ON FIRST FAILURE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5097X
NASA FMEA #: 06-1-1630-2

NASA DATA:
BASELINE []
NEW [X]

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5097
ITEM: LINES & FITTINGS, 2 INCH DEPRESSURIZATION

LEAD ANALYST: R. DUFFY

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[2 /1R]	[P]	[P]	[P]	[X] *
IOA	[/NA]	[]	[]	[]	[]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[/NA] [] [] [] []
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

(RESTRICTED FLOW)

NO CRITICALITY HAS BEEN ASSIGNED BECAUSE THIS FAILURE IS NOT CREDIBLE. THE LINE IS 2 INCHES IN DIAMETER AND WOULD REQUIRE LARGE SIZE DEBRIS FOR EFFECTIVE PLUGGING. ON THE OTHER HAND, HYDROGEN IS A VERY LIGHT MOLECULE AND CAN PERMEATE THROUGH ANY SIZE CRACK. IF IOA HAD TO ASSIGN A CRITICALITY, IT WOULD BE A 2/2 (LOSS OF MISSION) SINCE THE AIRLOCK WOULD BE UNABLE TO DEPRESSURIZE.

APPENDIX C ASSESSMENT WORKSHEET

ASSESSMENT DATE: 3/08/88
ASSESSMENT ID: LS-5098X
NASA FMEA #: 06-1-1128-1

NASA DATA:
BASELINE []
NEW []

SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5098
ITEM: AIRLOCK DEPRESSURIZATION CAP

LEAD ANALYST: K. BARICKMAN

ASSESSMENT:

	CRITICALITY FLIGHT HDW/FUNC	REDUNDANCY SCREENS			CIL ITEM
		A	B	C	
NASA	[3 /1R]	[P]	[P]	[P]	[] *
IOA	[2 /2]	[]	[]	[]	[X]
COMPARE	[N /N]	[N]	[N]	[N]	[N]

RECOMMENDATIONS: (If different from NASA)

[2 /2] [] [] [] [A]
(ADD/DELETE)

* CIL RETENTION RATIONALE: (If applicable)

ADEQUATE []
INADEQUATE []

REMARKS:

IOA/NASA FM: INABILITY TO REMOVE.

IOA COMMENT: FUNCTIONAL LOSS IS LOSS OF MISSION AND THERE IS NO
REDUNDANCY AVAILABLE.

APPENDIX D

CRITICAL ITEMS

APPENDIX D
POTENTIAL CRITICAL ITEMS

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
	2100	FAN/SEPARATOR NOISE	SHORTED
	2101	FAN/SEPARATOR MOTOR	FAILS TO OPEN
	2213	VACUUM VENT LINE HEAT	FAILS TO REMAIN
	2219	NOZZLE HEATER SWITCH	OPEN (ELECTRICAL)
	5022	O2 SUPPLY LINES	EXTERNAL LEAKAGE
	5056	EMU POWER/BATTERY	INTERMITTENT OPER
	5059	EMU POWER/BATTERY	ERRATIC OPERATION
	5060	EMU POWER/BATTERY	OPEN (ELECTRICAL)
05-06-2027-3	3012	SW-SMOKE DETECTION	SHORTED, ONE CONT
05-6UA-2000-1	5009	EMU WATER SUPPLY CIRC	FAILS TO REMAIN
05-6UA-2008-1	5006	EMU WATER SUPPLY SW	OPEN (ELECTRICAL)
05-6UA-2008-1	5055	EMU POWER/BATTERY	OPEN (ELECTRICAL)
05-6UA-2008-2	5006	EMU WATER SUPPLY SW	OPEN (ELECTRICAL)
05-6UA-2008-2	5055	EMU POWER/BATTERY	OPEN (ELECTRICAL)
05-6UA-2009-1	5014	EMU WASTE WATER SW	OPEN (ELECTRICAL)
05-6UA-2009-2	5014	EMU WASTE WATER SW	OPEN (ELECTRICAL)
05-6UA-2012-1	5085	EMU WATER SUPPLY STAT	SHORT TO GROUND
05-6UA-2013-1	5086	EMU WASTE WATER STAT	SHORTS TO GROUND
05-6V-2000-1	3001	CB-SMOKE DETN BAY 2A	OPEN (ELECTRICAL)
05-6V-2000-1	3003	CB-SMOKE DETN L/R FLT	OPEN (ELECTRICAL)
05-6V-2000-1	3005	CB-SMOKE DETN CABIN	OPEN (ELECTRICAL)
05-6V-2001-2	3007	CB-FIRE SUPPR, BAY 1	OPEN (ELECTRICAL)
05-6V-2026-4	3044	SWITCH-FIRE SUPPRESS	PHYSICAL BINDING
05-6V-2027-4	3112	SWITCH-SMOKE DETECTOR	SHORTED, SHORTS
05-6V-2028-3	3148	SW-FIRE SUPPRESSION	INADVERTENT OPERA
05-6V-2028-4	3048	SWITCH-FIRE SUPPRESS	PHYSICAL BINDING
05-6V-2202-1	3165	HYBRID DRIVER	INADVERTENT OPERA
05-6V-2202-3	3065	HYBRID DRIVER	OPEN (ELECTRICAL)
05-6V-2203-2	3164	HYBRID DRIVER	INADVERTENT OPERA
05-6V-2253-2	3154	DIODE-NO IDENTIFIER	SHORTED
05-6V-2302-2	3057	PYRO CONTROLLER	PREMATURE OPERATI
05-6V-2302-3	3056	PYRO CONTROLLER	LOSS OF OUTPUT
05-6VC-2001-1	2189	DUMP VALVE/NOZZLE	FAILS TO REMAIN
05-6VC-2002-1	2171	WASTE H2O DUMP ISOL.	FAILS TO REMAIN
05-6VC-2003-1	2151	TANK INLET VALVE CIRC	FAILS TO REMAIN
05-6VC-2006-1	2218	NOZZLE HEATER CIRCUIT	FAILS TO REMAIN
05-6VC-2007-1	2109	CIRCUIT BREAKER, WCS	FAILS TO REMAIN
05-6VC-2008-1	2105	CIRCUIT BREAKER, WCS	FAILS TO REMAIN
05-6VC-2021-2	2154	TANK INLET VALVE SW	SHORTED SINGLE
05-6VC-2021-3	2154	TANK INLET VALVE SW	SHORTED SINGLE
05-6VC-2021-3	2155	TANK INLET VALVE	SHORTED
05-6VC-2022-1	2173	WASTE H2O DUMP ISOL.	SINGLE CONTACT
05-6VC-2022-1	2174	WASTE H2O DUMP ISOL.	SINGLE CONTACT
05-6VC-2022-1	2175	WASTE H2O DUMP ISOL.	PHYSICAL BINDING
05-6VC-2022-2	2173	WASTE H2O DUMP ISOL.	SINGLE CONTACT

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
05-6VC-2022-2	2174	WASTE H2O DUMP ISOL.	SINGLE CONTACT
05-6VC-2022-2	2175	WASTE H2O DUMP ISOL.	PHYSICAL BINDING
05-6VC-2023-1	2195	WASTE H2O DUMP VALVE	SINGLE CONTACT
05-6VC-2023-1	2196	WASTE H2O DUMP VALVE	SINGLE CONTACT
05-6VC-2023-1	2197	WASTE H2O DUMP VALVE	PHYSICAL BINDING
05-6VC-2023-1	2198	WASTE H2O DUMP VALVE	OPEN (ELECTRICAL)
05-6VC-2023-1	2199	WASTE H2O DUMP VALVE	SHORTED
05-6VC-2023-1	2201	DUMP VALVE INDICATOR	LOSS OF OUTPUT
05-6VC-2023-2	2195	WASTE H2O DUMP VALVE	SINGLE CONTACT
05-6VC-2023-2	2196	WASTE H2O DUMP VALVE	SINGLE CONTACT
05-6VC-2023-2	2197	WASTE H2O DUMP VALVE	PHYSICAL BINDING
05-6VC-2023-2	2198	WASTE H2O DUMP VALVE	OPEN (ELECTRICAL)
05-6VC-2023-2	2199	WASTE H2O DUMP VALVE	SHORTED
05-6VC-2023-2	2201	DUMP VALVE INDICATOR	LOSS OF OUTPUT
05-6VC-2024-1	2191	DUMP VALVE ENABLE/NOZ	SINGLE CONTACT
05-6VC-2024-2	2191	DUMP VALVE ENABLE/NOZ	SINGLE CONTACT
05-6VC-2025-1	2220	NOZZLE HEATER SWITCH	SHORTED CLOSED
05-6VC-2025-2	2220	NOZZLE HEATER SWITCH	SHORTED CLOSED
05-6VC-2026-1	5067	VACUUM VENT ISOL. VLV	OPEN (ELECTRICAL)
05-6VC-2026-1	5068	VACUUM VENT ISOL. VLV	FAILS TO REMAIN
05-6VC-2026-2	5068	VACUUM VENT ISOL. VLV	FAILS TO REMAIN
05-6VC-2031-2	2202	DUMP VALVE INDICATOR	LOSS OF OUTPUT
05-6VC-2036-2	2178	DUMP ISOLATION VALVE	OPEN (ELECTRICAL)
05-6VC-2036-2	2179	DUMP ISOLATION VALVE	OPEN (ELECTRICAL)
05-6VC-2036-2	2180	WASTE H2O DUMP ISOL.	ERRONEOUS OUTPUT
05-6VC-2037-2	2252	WASTE DUMP VALVE SW	FAILS SHORTED
06-1-1120-4	5054	AIRLOCK TO AMBIENT	EXTERNAL LEAKAGE
06-1-1121-4	5054	AIRLOCK TO AMBIENT	EXTERNAL LEAKAGE
06-1-1122-2	5051	AIRLOCK TO AMBIENT	FAILS TO CLOSE
06-1-1122-4	5052	AIRLOCK TO AMBIENT	EXTERNAL LEAKAGE
06-1-1124-3	5094	AIRLOCK TO AMBIENT	EXTERNAL LEAK
06-1-1126-1	5033	DEPRESS VALVE (1)	FAILS TO OPEN
06-1-1126-4	5032	DEPRESS VALVE/CAP	EXTERNAL LEAKAGE
06-1-1127-1	5030	CAP VENT DEBRIS SCREE	PHYSICAL BINDING
06-1-1127-1	5031	CAP VENT DEBRIS SCREE	RESTRICTED FLOW
06-1-1128-1	5098	AIRLOCK DEPRESSURIZAT	INABILITY TO REMO
06-1-1128-2	5029	DEPRESS CAP VENT (1)	FAILS TO OPEN
06-1-1128-3	5032	DEPRESS VALVE/CAP (1)	EXTERNAL LEAKAGE
06-1-1201-1	5025	EMU O2 SUPPLY VALVE	FAILS TO OPEN
06-1-1201-2	5026	EMU O2 SUPPLY VALVE	FAILS TO CLOSE
06-1-1201-3	5027	EMU O2 SUPPLY VALVE	EXTERNAL LEAKAGE
06-1-1205-1	5091	O2 QUICK COUPLINGS	INABILITY TO CLOS
06-1-1205-3	5028	EMU O2 SUPPLY COUPLIN	EXTERNAL LEAKAGE
06-1-1206-1	5003	EMU WATER SUPPLY VLV	FAILS TO OPEN
06-1-1206-3	5005	EMU WATER SUPPLY VLV	EXTERNAL LEAKAGE
06-1-1208-1	5020	EMU WATER SUPPLY LINE	EXTERNAL LEAKAGE
06-1-1208-2	5087	EMU WATER SUPPLY LINE	RESTRICTED FLOW
06-1-1209-2	5090	EMU WASTE WATER LINE	RESTRICTED FLOW
06-1-1212-1	5011	EMU WASTE WATER VALVE	FAILS TO OPEN
06-1-1402-1	5088	LCG SUPPLY & RETURN	EXTERNAL LEAK

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
06-1-1402-2	5089	LCG SUPPLY & RETURN	RESTRICTED FLOW
06-1-1601-1	5039	AIRLOCK TO CABIN EQUA	FAILS TO OPEN
06-1-1601-2	5040	AIRLOCK TO CABIN EQUA	FAILS TO CLOSE
06-1-1601-4	5041	AIRLOCK TO CABIN EQUA	EXTERNAL LEAKAGE
06-1-1602-1	5037	AIRLOCK TO CABIN FILT	RESTRICTED FLOW
06-1-1603-1	5036	AIRLOCK TO CABIN VENT	FAILS TO CLOSE
06-1-1603-2	5035	AIRLOCK TO CABIN VENT	FAILS TO OPEN
06-1-1603-3	5035	AIRLOCK TO CABIN VENT	FAILS TO OPEN
06-1-1604-3	5043	AIRLOCK TO CABIN PRES	EXTERNAL LEAKAGE
06-1-1605-3	5043	AIRLOCK TO CABIN PRES	EXTERNAL LEAKAGE
06-1-1630-1	5096	LINES & FITTINGS	EXTERNAL LEAKAGE
06-1-1630-2	5097	LINES & FITTINGS	RESTRICTED FLOW
06-1-1631-1	5066	VACUUM VENT ISOLATION	FAILS TO CLOSE
06-1-1631-2	5065	VACUUM VENT ISOLATION	FAILS TO REMAIN
06-1-1631-3	5095	VACUUM VENT ISOLATION	EXTERNAL LEAKAGE
06-2-0110-1	2102	FAN/SEPARATOR MOTOR	FAILS TO REMAIN
06-2-0110-1	2107	FAN/SEPARATOR MOTOR	OPEN (ELECTRICAL)
06-2-0110-1	2108	FAN/SEPARATOR MOTOR	SHORT
06-2-0110-2	2107	FAN/SEPARATOR MOTOR	OPEN (ELECTRICAL)
06-2-0110-2	2108	FAN/SEPARATOR MOTOR	SHORT
06-2-0110-3	2102	FAN/SEPARATOR MOTOR	FAILS TO REMAIN
06-2-0110-3	2107	FAN/SEPARATOR MOTOR	OPEN (ELECTRICAL)
06-2-0110-3	2108	FAN/SEPARATOR MOTOR	SHORT
06-2-0110-4	2102	FAN/SEPARATOR MOTOR	FAILS TO REMAIN
06-2-0110-4	2107	FAN/SEPARATOR MOTOR	OPEN (ELECTRICAL)
06-2-0110-4	2108	FAN/SEPARATOR MOTOR	SHORT
06-2-0117-1	2091	WCS FAN/SEPARATOR SW	FAILS MID-TRAVEL
06-2-0117-1	2093	WCS FAN/SEPARATOR SW	FAILS OPEN
06-2-0117-1	2094	WCS MODE SWITCH (1)	FAILS MID-TRAVEL
06-2-0117-1	2096	WCS MODE SWITCH (1)	OPEN
06-2-0117-2	2092	WCS FAN/SEPARATOR SW	SHORTED CONTACT
06-2-0117-2	2095	WCS MODE SWITCH (1)	SHORTED
06-2-0118-1	2097	WCS FAN/SEPARATOR REL	OPEN (ELECTRICAL)
06-2-0118-2	2098	WCS FAN/SEPARATOR REL	SHORTED
06-2-0206-2	2017	COMMODE/LINER (1)	INTERNAL LEAKAGE
06-2-0206-2	2018	COMMODE UPPER RING (1)	INTERNAL LEAKAGE
06-2-0302-2	2070	DUAL CHECK VALVES (2)	FAILS TO REMAIN
06-2-0311-3	2116	WASTE TANK 1 INLET VLV	EXTERNAL LEAKAGE
06-2-0314-2	2126	WASTE TANK N2 HYDROPH	INTERNAL LEAKAGE
06-2-0315-2	2128	WASTE TANK 1 DRAIN VLV	INTERNAL LEAKAGE
06-2-0401-4	2048	MANUAL VENT VALVE (1)	EXTERNAL LEAKAGE
06-2-0402-1	2209	EXTERNAL LINE AND FIT	EXTERNAL LEAKAGE
06-2-0404-1	2207	CREW MODULE INTERNAL	EXTERNAL LEAKAGE
06-2-0404-1	2210	DYNATUBE FITTING	EXTERNAL LEAKAGE
06-2-0411-1	2139	WASTE TANK 1 DUMP ISO	RESTRICTED FLOW
06-2-0411-3	2138	WASTE TANK 1 DUMP ISO	EXTERNAL LEAKAGE
06-2-0417-2	2145	WASTE TANK 1 DUMP VLV	EXTERNAL LEAKAGE
06-2-0417-2	2147	WASTE TANK 1 DUMP VLV	FAILS TO CLOSE
06-2-0418-1	2211	VACUUM VENT NOZZLE (1)	RESTRICTED FLOW
06-2-0420-2	2131	GSE FILL AND PLUG (1)	FAILS TO CLOSE

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
06-2-0421-1	2203	DUMP NOZZLE HEATER (1)	OPEN (ELECTRICAL)
06-2-0421-1	2206	DUMP NOZZLE RESISTOR	OPEN (ELECTRICAL)
06-2-0422-1	2183	DUMP LINE HEATER (2)	OPEN (ELECTRICAL)
06-2-0422-1	2186	WASTE H2O DUMP HEATER	FAILS TO REMAIN
06-2-0423-1	2142	HIGH CAPACITY FILTER	RESTRICTED FLOW
06-2-0424-1	2214	VACUUM VENT LINE HEAT	OPEN (ELECTRICAL)
06-2-0425-1	2222	VACUUM VENT NOZZLE HE	OPEN (ELECTRICAL)
06-2-0429-1	2204	WASTE H2O DUMP NOZZLE	ERRONEOUS OUTPUT
06-2-0429-1	2205	WASTE H2O DUMP NOZZLE	ERRONEOUS OUTPUT
06-2-0430-1	2187	WASTE H2O DUMP LINE	OUT OF TOLERANCE
06-2-0430-1	2188	WASTE H2O DUMP LINE	ERRONEOUS OUTPUT
06-2-0431-1	2250	CONTINGENCY CROSS-TIE	EXTERNAL LEAKAGE
06-2-0431-2	2249	CONTINGENCY CROSS-TIE	INTERNAL LEAKAGE
06-2-0431-3	2144	CONTINGENCY H2O CROSS	INABILITY TO MATE
06-2-0432-1	2134	GSE DRAIN QD AND PLUG	FAILS TO CLOSE
06-2-0435-1	2040	WCS TO WWS QD (1)	RESTRICTED FLOW
06-2-0435-1	2044	WCS TO WWS DYNATUBE	RESTRICTED FLOW
06-2-0435-1	2112	WWS LINE, UNIONS	RESTRICTED FLOW
06-2-0435-1	2114	ARS CONDENSATE SUPPLY	RESTRICTED FLOW
06-2-0435-1	2232	WCS CHECK VALVE LINES	RESTRICTED FLOW
06-2-0435-2	2041	WCS TO WWS QD (1)	EXTERNAL LEAKAGE
06-2-0435-2	2042	WCS TO WWS LINE (1)	EXTERNAL LEAKAGE
06-2-0435-2	2042	WCS TO WWS LINE (1)	EXTERNAL LEAKAGE
06-2-0435-2	2043	WCS TO WWS DYNATUBE	EXTERNAL LEAKAGE
06-2-0435-2	2111	WWS LINE, UNIONS	EXTERNAL LEAKAGE
06-2-0435-2	2113	ARS CONDENSATE SUPPLY	EXTERNAL LEAKAGE
06-2-0435-2	2132	GSE FILL QD AND PLUG	EXTERNAL LEAKAGE
06-2-0436-2	2123	WASTE TANK 1 OUTLET	EXTERNAL LEAKAGE
06-2-0437-2	2123	WASTE TANK 1 OUTLET	EXTERNAL LEAKAGE
06-2-0437-2	2135	GSE DRAIN QD AND PLUG	EXTERNAL LEAKAGE
06-2-0438-1	2137	DUMP LINES, FITTINGS	RESTRICTED FLOW
06-2-0438-1	2142	HIGH CAPACITY FILTER	RESTRICTED FLOW
06-2-0438-2	2136	DUMP LINES, FITTINGS	EXTERNAL LEAKAGE
06-2-0438-2	2141	QD AND TP @ HIGH CAP.	EXTERNAL LEAKAGE
06-2-0442-2	2073	HOSE ASSEMBLY	EXTERNAL LEAKAGE
06-2-0442-2	2074	MUFFLER HOUSING INLET	EXTERNAL LEAKAGE
06-2-0443-1	2040	WCS TO WWS QD (1)	RESTRICTED FLOW
06-2-0443-1	2044	WCS TO WWS DYNATUBE	RESTRICTED FLOW
06-2-0443-2	2041	WCS TO WWS QD (1)	EXTERNAL LEAKAGE
06-2-0443-2	2043	WCS TO WWS DYNATUBE	EXTERNAL LEAKAGE
06-2-0443-2	2071	DUAL CHECK VALVES (2)	EXTERNAL LEAKAGE
06-2-0444-1	2013	TUBE, EMU EXTENSION	RESTRICTED FLOW
06-2-0444-2	2014	TUBE, EMU EXTENSION	EXTERNAL LEAKAGE
06-2-0444-2	2015	EMU QD (1)	EXTERNAL LEAKAGE
06-2-0445-1	2236	FAN/SEPARATOR MUFFLER	RESTRICTED FLOW
06-2-0445-1	2237	MUFFLER HOUSING ASSEM	RESTRICTED
06-2-0445-2	2238	MUFFLER HOUSING ASSEM	EXTERNAL LEAKAGE
06-2-0505-3	2245	WCS BYPASS SWITCH (2)	SHORTED TO GROUND
06-2-1101-1	1100	H2 SEPARATOR (2)	RESTRICTED FLOW
06-2-1101-2	1101	H2 SEPARATORS (2)	INTERNAL LEAKAGE

NASA FMEA	MDAC-ID	ITEM	FAILURE MODE
06-2-1101-3	1102	H2 SEPARATORS (2)	INTERMITTENT OPER
06-2-1101-4	1103	H2 SEPARATORS	EXTERNAL LEAKAGE
06-2-1103-1	1255	LINES AND FITTINGS	RESTRICTED FLOW
06-2-1103-2	1103	H2 SEPARATORS	EXTERNAL LEAKAGE
06-2-1123-1	1135	RELIEF VALVE, 1.5 PSI	FAILS TO OPEN
06-2-1124-2	1133	FILTER, GN2-TANKS INL	STRUCTURAL FAILUR
06-2-1130-2	1140	QD, GSE FILL/DRAIN	FAILS TO CLOSE
06-2-1130-2	1144	CAP, GSE QD (2)	EXTERNAL LEAKAGE
06-2-1130-2	1142	QD, GSE FILL/DRAIN	INTERNAL LEAKAGE
06-2-1131-2	1140	QD, GSE FILL/DRAIN	FAILS TO CLOSE
06-2-1131-2	1142	QD, GSE FILL/DRAIN	INTERNAL LEAKAGE
06-2-1131-2	1144	CAP, GSE QD (2)	EXTERNAL LEAKAGE
06-2-1132-1	1100	H2 SEPARATOR (2)	RESTRICTED FLOW
06-2-1132-2	1105	MICROBIAL FILTER (1)	EXTERNAL LEAKAGE
06-2-1132-2	1106	MICROBIAL FILTER QUIC	EXTERNAL LEAKAGE
06-2-1132-2	1110	TANKS INLET ISOLATION	EXTERNAL LEAKAGE
06-2-1132-2	1137	RELIEF VALVE, 1.5 PSI	EXTERNAL LEAKAGE
06-2-1132-2	1233	LINES AND FITTINGS	EXTERNAL LEAKAGE
06-2-1135-2	1228	QD, CONTINGENCY CROSS	FAILS TO REMAIN
06-2-1141-1	1135	RELIEF VALVE, 1.5 PSI	FAILS TO OPEN
06-2-1141-2	1136	RELIEF VALVE, 1.5 PSI	FAILS TO CLOSE
06-2-1156-1	1135	RELIEF VALVE, 1.5 PSI	FAILS TO OPEN
06-2-1156-2	1234	LINES AND FITTINGS	EXTERNAL LEAKAGE
06-2-1162-2	1228	QD, CONTINGENCY CROSS	FAILS TO REMAIN
06-2-1162-2	1233	LINES AND FITTINGS	EXTERNAL LEAKAGE
06-2-1164-2	1235	LINES AND FITTINGS	EXTERNAL LEAKAGE
06-2-1165-2	1113	TANKS OUTLET ISOL.	EXTERNAL LEAKAGE
06-2-1165-2	1154	CROSSOVER VALVE (1)	EXTERNAL LEAKAGE
06-2-1165-2	1167	ISOL VALVE, FES B LIN	EXTERNAL LEAKAGE
06-2-1165-2	1193	DUMP ISOL VALVE (1)	EXTERNAL LEAKAGE
06-2-1165-2	1235	LINES AND FITTINGS	EXTERNAL LEAKAGE
06-2-311000-01	3058	SMOKE DETECTOR (9)	LOSS OF ALL OUTPU
06-2-311000-02	3158	SMOKE DETECTOR (9)	INADVERTENT OPERA
06-2-311000-03	3258	SMOKE DETECTOR (9)	PARTIAL OUTPUT
06-2-330001-2	3059	FIRE SUPPRESSANT ASSE	EXTERNAL LEAKAGE
06-2-330050-2	3268	NASA STANDARD INITIAT	FAILS TO FIRE
06-2-371000-1	3062	PORTABLE FIRE SUPPRES	FAILS TO RELEASE

APPENDIX E DETAILED ANALYSIS

This appendix contains the IOA analysis worksheets supplementing previous results reported in STSEOS Working Paper 1.0-WP-VA87001-02, Analysis of the LSS and ALSS, (02 November 1987). Prior results were obtained independently and documented before starting the FMEA/CIL assessment activity. Supplemental analysis was performed to address failure modes not previously considered by the IOA. Each sheet identifies the hardware item being analyzed, parent assembly and function performed. For each failure mode possible causes are identified, and hardware and functional criticality for each mission phase are determined as described in NSTS 22206, Instructions for Preparation of FMEA and CIL, 10 October 1986. Failure mode effects are described at the bottom of each sheet and worst case criticality is identified at the top.

LEGEND FOR IOA ANALYSIS WORKSHEETS

Hardware Criticalities:

- 1 = Loss of life or vehicle
- 2 = Loss of mission or next failure of any redundant item (like or unlike) could cause loss of life/vehicle
- 3 = All others

Functional Criticalities:

- 1R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of life or vehicle.
- 2R = Redundant hardware items (like or unlike) all of which, if failed, could cause loss of mission.

Redundancy Screen A:

- 1 = Is Checked Out PreFlight
- 2 = Is Capable of Check Out PreFlight
- 3 = Not Capable of Check Out PreFlight
- NA = Not Applicable

Redundancy Screens B and C:

- P = Passed Screen
- F = Failed Screen
- NA = Not Applicable

E.1

SUPPLY WATER SUBSYSTEM
ANALYSIS WORKSHEETS

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1250 ABORT: 3/2R

ITEM: FILTER, TANKS N2 INLET (4)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J., SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/2R
LIFTOFF:	3/2R	TAL:	3/2R
ONORBIT:	3/2R	AOA:	3/2R
DEORBIT:	3/2R	ATO:	3/2R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

CONTINUOUS FLOW OF N2 INTO THE CABIN DISTURBING O2/N2 CONTROL ON THE ARPCS. EVENTUALLY THE CABIN WILL BE N2-RICH, DEPRIVED OF O2, SINCE THE 14.7 PSIA REGULATORS WILL NOT OPEN TO FLOW O2. N2 PRESSURIZATION TO TANKS IS TO BE DISCONTINUED AND TANKS PLACED ON CABIN PRESSURE AS BACK-UP. LOSS OF FUNCTION (LOSS OF TANK PRESSURE) IS LOSS OF EXPELLING WATER THRU DUMP OR FES. LOSS OF THIS FUNCTION (NOT ABLE TO PRESS TANKS) WILL FORCE TERMINATION OF MISSION, SINCE THE PPO2 IN THE CABIN CANNOT BE MAINTAINED AUTOMATICALLY.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 1251 ABORT: 3/1R

ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF BACK-UP LINE TO DELIVER FCP WATER TO TANKS. PRIMARY LINE IS AVAILABLE WITH H2 REMOVAL CAPABILITY. LOSS OF FUNCTION TO REMOVE FCP WATER IS POTENTIAL LOSS OF LIFE/VEHICLE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 1252 ABORT: 3/1R

ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF BACK-UP LINE TO DELIVER FCP WATER TO TANKS. PRIMARY LINE IS AVAILABLE WITH H2 REMOVAL CAPABILITY. LOSS OF FUNCTION TO REMOVE FCP WATER IS POTENTIAL LOSS OF LIFE/VEHICLE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1253 ABORT: 3/2R

ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/2R
LIFTOFF:	3/2R	TAL:	3/2R
ONORBIT:	3/2R	AOA:	3/2R
DEORBIT:	3/2R	ATO:	3/2R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF ALTERNATE FCP LINE TO FLOW WATER TO THE TANKS. PRIMARY LINE IS AVAILABLE WITH H2 REMOVAL CAPABILITY. LOSS OF FUNCTION TO CARRY WATER TO THE TANKS WITH THIS FAILURE RESULTS IN FLOW OF CONTINUOUS WATER INTO THE AREA, AND LOSS OF WATER REPLENISH THE TANK. MISSION IS LOST, SINCE THE FCPs ARE STILL DRAINED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1254 ABORT: 3/2R

ITEM: LINES/FITTINGS AND QD, FCP ALTERNATE LINE
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/2R
LIFTOFF:	3/2R	TAL:	3/2R
ONORBIT:	3/2R	AOA:	3/2R
DEORBIT:	3/2R	ATO:	3/2R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF ALTERNATE FCP LINE TO FLOW WATER TO THE TANKS. PRIMARY LINE IS AVAILABLE WITH H2 REMOVAL CAPABILITY. LOSS OF FUNCTION TO CARRY WATER TO THE TANKS WITH THIS FAILURE RESULTS IN FLOW OF CONTINUOUS WATER INTO THE AREA, AND LOSS OF WATER REPLENISH THE TANK. MISSION IS LOST, SINCE THE FCPs ARE STILL DRAINED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 1255

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 2/2
ABORT: 2/2

ITEM: LINES AND FITTINGS, H2 VENT
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: M.J. SAIIDI

SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/2
LIFTOFF:	2/2	TAL:	2/2
ONORBIT:	2/2	AOA:	2/2
DEORBIT:	2/2	ATO:	2/2
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF CAPABILITY TO REMOVE H2 FROM THE WATER WILL POSE
POTENTIAL MISSION IMPACT AS EXPLAINED IN MDAC-1100. HOWEVER,
THIS FAILURE ALLOWS WATER TO FLOW TO THE TANKS, SO THAT LOSS OF
FUNCTION WITH THIS FAILURE WILL NOT DEAD-HEAD THE FUEL CELLS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1256 ABORT: 3/3

ITEM: LINES AND FITTINGS, A/L TO EMU
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:
LOSS OF FUNCTION TO SUPPORT EVA/EMU ACTIVITIES, OTHERWISE NO
SIGNIFICANT EFFECT.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/28/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1257 ABORT: 3/3

ITEM: LINES AND FITTINGS, A/L TO EMU
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

CONTINUOUS FLOW OF WATER TO THE CABIN UNLESS THE TANKS B OUTLET VALVE IS CLOSED. TANK A OUTLET VALVE AND THE X-OVER VALVE ARE OPERATIONALLY CLOSED. LOSS OF FES A, AND PRIMARY DUMP CAPABILITY. ONLY TWO TANKS REMAINING - MISSION IMPACT.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/12/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1258 ABORT: 3/2R

ITEM: SWITCH, OUTLET ISOL VALVE (4)
FAILURE MODE: PHYSICAL BINDING/JAMMING

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4) EPDC
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT		HDW/FUNC
PRELAUNCH:	3/3	RTLS:		3/2R
LIFTOFF:	3/2R	TAL:		3/2R
ONORBIT:	3/2R	AOA:		3/2R
DEORBIT:	3/2R	ATO:		3/2R
LANDING/SAFING:	3/3			

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: PNL R12A2 - CABIN
PART NUMBER: S4, 10, 15 AND 7

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THIS FAILURE MODE (PHYSICALLY JAMMED IN CLOSED POSITION) WILL PREVENT OPENING OF THE OUTLET ISOL VALVE TO ALLOW FLOW OF WATER FROM THE AFFECTED TANK - THAT IS LOSS OF ONE TANK FROM WATER MANAGEMENT SCENARIO. FUNCTIONAL LOSS OF REDUNDANT ITEMS WILL HAVE SAME EFFECTS AS MDAC-1112.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/12/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 1259 ABORT: 3/2R

ITEM: SWITCH, OUTLET ISOL VALVE (4)
FAILURE MODE: SHORTED, SINGLE CONTACT

LEAD ANALYST: M.J. SAIIDI

SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4) EPDC
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/2R
LIFTOFF:	3/2R	TAL:	3/2R
ONORBIT:	3/2R	AOA:	3/2R
DEORBIT:	3/2R	ATO:	3/2R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: PNL R12A2 - CABIN
PART NUMBER: S4, 10, 15 AND 7

CAUSES: CONTAMINATION, CORROSION

EFFECTS/RATIONALE:

A SHORT ACROSS "CLOSE" CONTACTS IS PERCEIVED TO BE MORE SEVERE THAN ACROSS "OPEN" CONTACTS. IN THIS CASE, THE AFFECTED TANK WILL BE ISOLATED FROM GENERATED WATER LINE AND THE EFFECT IS SAME AS EXPLAINED FOR INLET VALVE FAILED CLOSED, MDAC-1112.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/12/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 1260 ABORT: 3/3

ITEM: SWITCH, OUTLET ISOL VALVE (4)
FAILURE MODE: OPEN (ELECTRICAL), SINGLE CONTACT

LEAD ANALYST: M.J. SAIIDI SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) SUPPLY WATER SUBSYSTEM
- 3) TANK ASSEMBLY
- 4) EPDC
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: PNL R12A2 - CABIN
PART NUMBER: S4, 10, 15 AND 7

CAUSES: CONTAMINATION, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

A SINGLE CONTACT OPEN ACROSS "OPEN" PINS WILL PREVENT OPENING OF THE ISOL VALVE THEREFORE ISOLATING THE AFFECTED TANK FROM GENERATED WATER LINE - SEE MDAC-1112. HOWEVER, THE VALVES ARE ALL CONFIGURED TO OPEN POSITION THROUGHOUT MISSION, AND NO CREW ACTION IS ANTICIPATED TO CLOSE THEM.

REFERENCES:

E.2

**WASTE MANAGEMENT SUBSYSTEM
ANALYSIS WORKSHEETS**

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2225 ABORT: /NA

ITEM: FIXED FILTER URINAL SCREEN (2)
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) URINE/WASTE FLUID COLLECTION ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE BLOCKAGE IS READILY DETECTABLE AND REQUIRES USE OF ALTERNATE URINE COLLECTION HOSE. IF SECOND PATH FAILS THEN A MISSION LOSS IS A POTENTIAL IF THERE IS NOT SUFFICIENT SUPPLIES OF FCB AND UCD FOR THE REMAINDER OF THE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2226

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: /NA

ITEM: EMU QD (1)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN

SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) URINE/WASTE FLUID COLLECTION ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG. 238B5134G1]

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
FUNGUS/BACTERIAL GROWTH

EFFECTS/RATIONALE:

WITH LOSS OF QD FLOW A "WORK-AROUND" HAS BEEN DEVELOPED AS AN IFM
TO DUMP INTO A CWC, HOWEVER IF THE REDUNDANT PATH FAILS A MISSION
LOSS WOULD BE DEVELOPED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2227 ABORT: /NA

ITEM: COMMODE LINER
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) FECAL/EMESIS COLLECTION ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG. 63E905763G2]

CAUSES: OVERLOAD, CHEMICAL REACTION

EFFECTS/RATIONALE:

THE RESTRICTED/BLOCKED FLOW OF THE COMMODE LINER CREATES A MISSION LOSS SCENARIO IF THE FCB AND UCDs ARE NOT SUFFICIENTLY SUPPLIED TO COMPLETE THE MISSION, OTHERWISE THE FCB AND UCDs ARE REDUNDANT COLLECTION METHODS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2228 ABORT: /NA

ITEM: COMMODE LINER
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) FECAL/EMESIS COLLECTION ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG. 63E905763G2]

CAUSES: OVERLOAD, CHEMICAL REACTION

EFFECTS/RATIONALE:

THE RESTRICTED/BLOCKED FLOW OF THE COMMODE LINER CREATES A MISSION LOSS SCENARIO IF THE FCB AND UCDs ARE NOT SUFFICIENTLY SUPPLIED TO COMPLETE THE MISSION, OTHERWISE THE FCB AND UCDs ARE REDUNDANT COLLECTION METHODS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2229 ABORT: 3/3

ITEM: AUXILIARY TRASH VENT ORIFICE (1)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE RESTRICTED/BLOCKED FLOW CAUSES NO PROBLEMS EXCEPT ODOR
BUILDUP IN THE AUXILIARY WET TRASH AREA.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2230 ABORT: 3/3

ITEM: WET TRASH VENT LINE ORIFICE (1)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE RESTRICTED/BLOCKED FLOW OUT OF THE WET TRASH AREA IS OF NO EFFORT TO MISSION OR VEHICLE, EXCEPT POSSIBLE NOXIOUS GAS BUILD-UP IN THE WET TRASH CONTAINER.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: /NA
MDAC ID: 2231 ABORT: /NA

ITEM: WET TRASH VENT LINE ORIFICE (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES:

EFFECTS/RATIONALE:

VIEWS AS A NON-CREDIBLE FAILURE - SEE VALVE HOUSING (MDAC ID 2048 AND 2051) FOR EXTERNAL LEAKAGE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 2232 ABORT: /NA

ITEM: WCS CHECK VALVE LINES TO WWS QD
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/2	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION, FUNGUS/BACTERIAL GROWTH

EFFECTS/RATIONALE:

THE LOSS OF THIS LINE RESTRICTS THE WCS USAGE AND THUS RESTRICTS WASTE COLLECTION TO FCB AND UCDs WHICH WAS DEFINED AS A MISSION LOSS BECAUSE THERE MAY NOT BE SUFFICIENT SUPPLIES ON-BOARD TO COMPLETE THE MISSION TIME-LINE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2233 ABORT: /NA

ITEM: WCS CHECK VALVE LINES TO WWS QD
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION, FUNGUS/BACTERIAL GROWTH

EFFECTS/RATIONALE:

THE LOSS OF THIS LINE RESTRICTS THE WCS USAGE AND THUS RESTRICTS WASTE COLLECTION TO FCB AND UCDs WHICH WAS DEFINED AS A POTENTIAL MISSION LOSS BECAUSE THERE MAY NOT BE SUFFICIENT SUPPLIES ON-BOARD TO COMPLETE THE MISSION TIME-LINE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2234 ABORT: /NA

ITEM: COMMODE RE-PRESSURIZATION VALVE ORIFICE (1)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) VALVE ASSEMBLY
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 (VALVE 5.10) [G.E. DWG 47D264875G4]

CAUSES: CONTAMINATION, BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

WHEN THE ORIFICE IS PLUGGED, THE COMMODE CANNOT BE REPRESSURIZED AT THE NORMAL RATE, BUT THE COMMODE CAN STILL BE ACCESSED. IF THE SECONDARY REPRESSURIZATION LINE IS ALSO BLOCKED THEN WCS USAGE FAILS EXCEPT FOR FCB AND UCDs WHICH COULD NECESSITATE A MISSION LOSS DUE TO POTENTIAL OF INSUFFICIENT FCB AND UCD SUPPLIES TO COMPLETE THE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2235 ABORT: /NA

ITEM: HOSE ASSEMBLY, FAN/SEPARATOR TO CV (2)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION,
BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

THE RESTRICTED FLOW CAUSES SWITCHING OVER TO THE BACKUP
FAN/SEPARATOR. IF THE SECOND FAN/SEPARATOR FAILS A POTENTIAL
LOSS OF MISSION DEVELOPS IF THE FCB AND UCD SUPPLIES ARE NOT
SUFFICIENT TO COMPLETE THE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2236 ABORT: /NA

ITEM: FAN/SEPARATOR MUFFLER HOUSING INLET DUCT
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER:

CAUSES: CONTAMINATION, OVERLOAD, PIECE-PART FAILURE, VIBRATION,
CHEMICAL REACTION, BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

LOSS OF FILTERED OUTPUT WILL CAUSE FLOODING OF THE FAN/SEPARATORS
AND LOSS OF WCS FUNCTION. THE LOSS OF WCS FUNCTION PRODUCES A
LOSS OF MISSION CONDITION IF THE LIMITED FECAL AND URINE
COLLECTION DEVICES ARE NOT SUFFICIENT TO COMPLETE THE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2237 ABORT: /NA

ITEM: MUFFLER HOUSING ASSEMBLY (1)
FAILURE MODE: RESTRICTED AND BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6) MUFFLER HOUSING INSTALLATION
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG 47E232908G4]

CAUSES: CONTAMINATION, PIECE-PART FAILURE, BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

THE LOSS OF THE MUFFLER HOUSING FLOW ELIMINATES THE WCS USAGE.
THE REDUNDANT SYSTEM CONSISTS OF THE FCB AND UCDs. IF THERE ARE
NOT SUFFICIENT FCB AND UCD SUPPLIES FOR THE MISSION DURATION THEN
A MISSION LOSS WOULD BE DEVELOPED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 2238 ABORT: /NA

ITEM: MUFFLER HOUSING ASSEMBLY (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6) MUFFLER HOUSING INSTALLATION
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/2	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG 47E232908G4]

CAUSES: MECHANICAL SHOCK, MISHANDLING/ABUSE, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE EXTERNAL LEAKAGE OF UNFILTERED WCS CONTROL AIR CREATES A
HEALTH PROBLEM BY THE BACTERIA INVOLVED AND IS A MISSION HAZARD
IF NOT DISCOVERED IN TIME.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2239 ABORT: /NA

ITEM: ODOR/BACTERIA FILTER (2)
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6) MUFFLER HOUSING INSTALLATION
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART FAILURE, HIGH PRESSURE,
VIBRATION, BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

THE LOSS OF ACTIVE FILTERING REQUIRES REPLACEMENT OF THE FILTER UNIT WITH THE 1 SPARE ITEM. THE PROCESS OF BLOCKED FLOW CAN ALSO CAUSE FLOODED FAN/SEPARATORS AND POTENTIAL BODY WASTE CONTAMINANTS INTO THE CABIN ATMOSPHERE. THE LOSS OF ALL ACTIVE FILTERING REQUIRES THE USE OF FCB AND UCDS WHICH IS CONSIDERED A LOSS OF MISSION EFFECT BECAUSE THERE IS A POTENTIAL OF DEPLETING THE ON-BOARD OF FCB AND UCD BEFORE MISSION COMPLETION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2240

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: /NA

ITEM: BALLAST VALVE SCREEN (1)
FAILURE MODE: DAMAGED ELEMENT/OPEN

LEAD ANALYST: K. BARICKMAN

SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) BALLAST VALVE
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG 199C3110P2]

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THIS IS A SECONDARY FILTER SCREEN; THE FAILURE CAUSES NO
PROBLEMS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2241 ABORT: /NA

ITEM: BALLAST SELECT VALVE (BALLAST VALVE ASSEMBLY) (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) BALLAST VALVE
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 [G.E. DWG 47C265767G2]

CAUSES: PIECE-PART FAILURE, VIBRATION

EFFECTS/RATIONALE:
NO PROBLEM EXCEPT POTENTIAL REDUCED AIR FLOW FROM WET TRASH AREA.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2242 ABORT: /NA

ITEM: BALLAST VALVE TO BALLAST CONTROL VALVE LINES AND
FITTINGS (1)
FAILURE MODE: RESTRICTED OR BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES	ABORT	HDW/FUNC
PRELAUNCH:	/NA		RTLS:	/NA
LIFTOFF:	/NA		TAL:	/NA
ONORBIT:	3/2R		AOA:	/NA
DEORBIT:	/NA		ATO:	/NA
LANDING/SAFING:	/NA			

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: G.E. DWG 47C265767G2

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION,
BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

THE LOSS OF THIS LINE PROHIBITS THE STANDARD REPRESSURIZATION OF THE COMMODE OR THE BALLAST AIR FLOW FOR URINAL USAGE, THUS A LOSS OF WASTE COLLECTION METHODS. THE FCB AND UCDS CAN BE USED AS LONG AS THE SUPPLY LASTS, WHICH MAY NOT BE SUFFICIENT TO COMPLETE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2243 ABORT: /NA

ITEM: BALLAST VALVE TO BALLAST CONTROL VALVE LINES AND
FITTINGS (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: G.E. DWG 47C265767G2

CAUSES: MECHANICAL SHOCK, PIECE-PART FAILURE, VIBRATION

EFFECTS/RATIONALE:

THE EXTERNAL LEAKAGE CAUSES NO PROBLEM FOR MISSION LIFE OR OPERATIONS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2244

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: /NA

ITEM: THIGH BAR RESTRAINT (2)
FAILURE MODE: FAILS CLOSED, FAILS IN "IN-USE" POSITION

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) CREW RESTRAINT ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: G.E. DWG 63E905736G1

CAUSES: MISHANDLING/ABUSE

EFFECTS/RATIONALE:

THE THIGH BAR WOULD FAIL IN THE "IN-USE" POSITION IF THE CREW MEMBER FORCED THE BAR INTO PLACE, THUS BENDING IT OUT OF SHAPE. THIS FAILURE HAS OCCURED ON SEVERAL FLIGHTS AND IS REMEDIED BY SIMPLY BENDING BACK INTO SHAPE. THIS IS AN ITEM FOR POTENTIAL MODIFICATIONS IN DESIGN TO ELIMINATE THE PROBLEM.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2245 ABORT: /NA

ITEM: WCS BYPASS SWITCH (2)
FAILURE MODE: SHORTED TO GROUND

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) ELECTRICAL PARTS
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14 (SWITCH S6 AND S7)

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION

EFFECTS/RATIONALE:

THE FAILURE OF THE SWITCH BY SHORTING TO GROUND CAUSES THE ASSOCIATED CIRCUIT BREAKER "TRIP" AND THE OFF-LINE REDUNDANT FAN/SEPARATOR NEEDS TO BE ACTUATED. IF THE SECOND FAN/SEPARATOR FAILS THEN THE FCB AND UCDs MUST BE USED FOR CREW WASTE COLLECTION. IF THERE ARE NOT SUFFICIENT FCB AND UCD SUPPLIES A MISSION LOSS IS DEVELOPED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2246 ABORT: /NA

ITEM: WASTE TANK INLET LINES AND FITTINGS (1)
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) STORAGE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	3/3	TAL:	/NA
ONORBIT:	3/1R	AOA:	/NA
DEORBIT:	3/3	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: V62Q0540A

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION, BACTERIAL/FUNGUS GROWTH

EFFECTS/RATIONALE:

BLOCKED FLOW ELIMINATES THE WASTE STORAGE TANK USAGE AND ALL
WASTE FLUIDS MUST BE DUMPED INTO EITHER A CWC OR DIRECTLY
OVERBOARD THRU WASTE OR SUPPLY WATER DUMP LINES.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2247 ABORT: /NA

ITEM: WASTE TANK OUTLET LINES AND FITTINGS
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: ECLSS AREA 90
PART NUMBER: V62Q0540A

CAUSES: CONTAMINATION, FUNGUS/BACTERIA GROWTH

EFFECTS/RATIONALE:

THIS FAILURE ONLY EFFECTS GROUND OPERATIONS AND IS NOT A MISSION
IMPACT FAILURE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 2248

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/2R
ABORT: /NA

ITEM: HYDROPHOBIC FILTER (1)
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN

SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) STORAGE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	3/3	ATO:	/NA
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: 90V62FL1

CAUSES: CONTAMINATION, PIECE-PART FAILURE, CHEMICAL REACTION

EFFECTS/RATIONALE:

LOSS OF THE FILTER IS A DETECTABLE FAILURE BECAUSE THE WASTE TANK MOTION WILL BE RESTRICTED DUE TO THE EXCESSIVE PRESSURE BUILDUP. THE WASTE/EMU FLUIDS MUST THEN BE DUMPED OVERBOARD OR INTO A CWC FOR LATER DISPOSAL. IF ALL COLLECTION/DUMP METHODS FAILS THEN THE FCB AND UCDs MUST BE USE. THE FCB AND UCB USAGE COULD RESULT IN LOSS OF MISSION IF THERE ARE NOT SUFFICIENT SUPPLIES FOR THE REMAINDER OF THE MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2249 ABORT: 3/3

ITEM: CONTINGENCY CROSS-TIE QD AND PLUG (1)
FAILURE MODE: INTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) DUMP LINE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [3] B [F] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: 80V62TP103 (MC276-0020-1101)

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION, CHEMICAL REACTION

EFFECTS/RATIONALE:

WHEN THE QD LEAKS, THAT IS A "NO EFFECT" FAILURE THAT IS NOT
DETECTABLE HOWEVER WHEN THE SEAL ON THE PLUG FAILS THEN BODY
WASTES CAN LEAK INTO THE CREW CABIN THUS PRESENTING A HAZARD TO
THE CREW AND LOSS OF MISSION SCENARIO. NEITHER OF THESE FAILURES
IS DETECTABLE UNTIL THE SECOND ONE OCCURS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 2250 ABORT: 3/3

ITEM: CONTINGENCY CROSS-TIE QD AND PLUG (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) DUMP LINE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/1R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: 80V62TP103 (MC276-0020-1101)

CAUSES: PIECE-PART FAILURE, PRESSURE HIGH, VIBRATION, CHEMICAL REACTION

EFFECTS/RATIONALE:

THE FIRST FAILURE LIMITS MISSION LIFE BECAUSE OF LOST WASTE COLLECTION METHODS AND MUST USE FCB AND UCDs. THE EXTERNAL LEAKAGE OF THE QD MEANS THAT IF THE CROSS-TIE NEEDS TO BE USED FOR THE SUPPLY WATER DUMP THEN THERE IS A POTENTIAL FOR LOSS OF COOLING FLUIDS AND THUS LOSS OF LIFE/VEHICLE IF UNDETECTED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 2251 ABORT: /NA

ITEM: WASTE DUMP VALVE SWITCH INDICATOR (1)
FAILURE MODE: FAILS OPEN

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) ELECTRICAL PARTS
- 5) DUMP LINE ASSEMBLY
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/3	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: D&C PANEL ML31C, 80V73A127
PART NUMBER: INDICATOR DS4

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION

EFFECTS/RATIONALE:

THE FAILURE OF THE INDICATOR IS NOT MISSION OR LIFE CRITICAL AS THERE ARE OTHER INDICATIONS OF VALVE STATUS AND EVEN IF ALL VALVE STATUS IS LOST WASTE DUMPS CAN STILL BE PERFORMED IF THE VALVE FUNCTION IS NOT LOST.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 2252 ABORT: /NA

ITEM: WASTE DUMP VALVE SWITCH
FAILURE MODE: FAILS SHORTED, SHORT TO GROUND

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) ELECTRICAL PARTS
- 5) DUMP LINE ASSEMBLY
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	2/1R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: D&C PANEL ML31C, 80V73A127
PART NUMBER: INDICATOR DS4

CAUSES: CONTAMINATION, MISHANDLING/ABUSE, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

LOSS OF INDICATOR BY GROUNDING WILL ELIMINATE THE WASTE WATER DUMP VALVE CAPABILITY BECAUSE OF TRIPPED CIRCUIT BREAKER AND THE SUPPLY WATER DUMP LINE MUST BE USED. UNLESS THE VALVE IS OPEN AT TIME OF FAILURE, IN WHICH CASE HAVE POTENTIAL FOR LOSS OF LIFE IF ANOTHER VALVE SEAL FAILS (2/1R PNP CRITICALITY). IF THE SUPPLY WATER DUMP BECOMES INOPERABLE THE FUEL CELLS COULD BE FLOODED, HENCE LOSS OF ORBITER POWER AND A LOSS OF LIFE CONDITION ARISES.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/03/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2253 ABORT: /NA

ITEM: FAN/SEPARATOR INLET HOSE FROM COMMODE (2)
FAILURE MODE: RESTRICTED AND BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) FAN/SEPARATOR
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 80V62A14

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

THE LOSS OF THE INLET LINE REQUIRES USE OF THE ALTERNATE FAN/SEPARATOR, IF THAT FAILS THEN THE FCB AND UCDs MUST BE USED. DEPENDING ON THE MISSION LOCATION OF THE FAN/SEPARATOR ASSEMBLY FAILURES THERE MAY NOT BE ENOUGH FCB AND UCD SUPPLIES FOR THE MISSION - THUS A MISSION LOSS SITUATION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2254 ABORT: /NA

ITEM: SCREEN, DOWNSTREAM OF BALLAST/REPRESS SCREEN (1)
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE COLLECTION SUBSYSTEM
- 4) LIQUID AND AIR LINE INSTALLATION
- 5) BALLAST VALVE
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	HDW/FUNC	CRITICALITIES ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	3/2R	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: ECLSS AREA 90
PART NUMBER: WCS 90V62A14 [G.E. DWG 47D232872P3]

CAUSES: CONTAMINATION, BACTERIA/FUNGUS GROWTH

EFFECTS/RATIONALE:

INSUFFICIENT AIRFLOW TO URINAL, EXCESSIVE DRAG ON FAN/SEPARATOR AND POTENTIAL FOR FLOODING FAN/SEPARATOR. IF FLOW IS BLOCKED, CANNOT USE URINAL OR COMMODE AND MUST USE FCB AND UCDs. IF FCB AND UCD SUPPLY IS NOT SUFFICIENT FOR REMAINING MISSION LIFE, THEN A MISSION LOSS OCCURS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 12/11/87 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/2R
MDAC ID: 2255 ABORT: 3/3

ITEM: LINES AND FITTINGS, DUMP VALVE TO NOZZLE (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) DUMP LINE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: MIDBODY AREA 40
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART FAILURE, VIBRATION

EFFECTS/RATIONALE:

THE EXTERNAL LEAK IN THE DUMP LINE IS A PROBLEM BECAUSE OF THE
POTENTIAL FOR CONTAMINATION OF PAYLOADS DUE TO THE WASTE FLUIDS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE:	12/11/87	HIGHEST CRITICALITY	HDW/FUNC
SUBSYSTEM:	LIFE SUPPORT	FLIGHT:	3/2R
MDAC ID:	2256	ABORT:	3/3

ITEM: LINES AND FITTINGS, DUMP VALVE TO NOZZLE (1)
FAILURE MODE: RESTRICTED/BLOCKED FLOW

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) WASTE MANAGEMENT SUBSYSTEM
- 3) WASTE WATER SUBSYSTEM
- 4) DUMP LINE ASSEMBLY
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/2R	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [NA] C [P]

LOCATION: MIDBODY AREA 40
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

THE LOSS OF THE EXTERNAL DUMP LINE FORCES THE USE OF THE CONTINGENCY CROSS-TIE QD AND SUPPLY WATER DUMP LINE. THE USE OF THE SUPPLY DUMP LINE WITH WASTE FLUIDS COULD PRODUCE A LOST MISSION IF ALL OF THE DUMP LINES ARE BLOCKED, IN WHICH CASE A LOSS OF MISSION WOULD BE GENERATED.

REFERENCES:

E.3

SMOKE DETECTION/FIRE SUPPRESSION SUBSYSTEM
ANALYSIS WORKSHEETS

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/06/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 1/1
MDAC ID: 3112 ABORT: 1/1

ITEM: SWITCH-SMOKE DETECTOR SENSOR RESET (57)
FAILURE MODE: SHORTED, SHORTS (POLE-TO-POLE), SHORTS (TO GROUND)

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SMOKE DETECTION
- 3) RESET
- 4) SWITCH
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC	
PRELAUNCH:	1/1	RTLS:	1/1	
LIFTOFF:	1/1	TAL:	1/1	
ONORBIT:	1/1	AOA:	1/1	
DEORBIT:	1/1	ATO:	1/1	
LANDING/SAFING:	1/1			

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: PNL L1A1
PART NUMBER: 31V73A1A1

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE FAILURE TIES TWO OR THREE MAIN BUSES TOGETHER WHICH MAY
RESULT IN THE LOSS OF TWO OR FOUR SMOKE DETECTORS. IF THE
FAILURE TIES THREE BUSES ONE BAY WILL HAVE NO SENSING REMAINING,
IF TWO BUSES ARE TIED ONE SUBSEQUENT FAILURE CAN RESULT IN THE
SAME
CONDITION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/06/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3114 ABORT: 3/1R

ITEM: SW-SMOKE DETECTOR CIRCUIT TEST (S8)
FAILURE MODE: SHORTED, SHORTED (POLE-TO-POLE), SHORT (TO GROUND)

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) SMOKE DETECTION
- 3) SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: PNL L1A1
PART NUMBER: 31V73A1A1

CAUSES:

EFFECTS/RATIONALE:

THE SMOKE DETECTOR STATUS ALARMS ARE CONTINUOUSLY CONFIGURED IN THE TEST MODE WHICH DISABLES THE HARDWARE ALARM. REDUNDANT SMOKE CONCENTRATION FDA ALARMS REMAIN IN ALL AREAS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/09/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3144 ABORT: 3/1R

ITEM: SWITCH-FIRE SUPPRESSION AV BAY 1, 2, 3, ARM/SAFE
(S1,S2,S3)
FAILURE MODE: INADVERTENT OPERATION, PREMATURE OPERATION, FAILS
CLOSED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/2R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: PNL L1A1
PART NUMBER: 31V73A1A1

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

FAILURE OF COMPONENT RESULTS IN FIRE SUPPRESSANT PIC BEING ARMED. POWER CAN BE REMOVED BY OPENING ASSOCIATED CB. IF BREAKER FAILS CLOSED, PIC CANNOT BE DISARMED. A SUBSEQUENT FAILURE OF DISCHARGE SW OR PIC CAN DISCHARGE SUPPRESSANT & AFTER APPROXIMATELY 50 HRS THE CAPABILITY TO SUPPRESS A FIRE DURING ENTRY IS LOST (PORTABLE BOTTLES CANNOT BE USED DURING THIS PHASE). IF BOTTLE IS DISCHARGED BEFORE LIFT-OFF TERMINATE MISSION, IF LIFT-OFF TAKES PLACE, SUPPRESSANT SHOULD PROVIDE PROTECTION UNTIL ORBIT OPERATIONS ARE ESTABLISHED. FOR DEORBIT A PORTABLE BOTTLE SHOULD BE DISCHARGED INTO AFFECTED BAY PRIOR TO DEORBIT BURN. THIS PROVIDES PROTECTION FOR APPROXIMATELY 24 HOURS. FAILURE IS DETECTABLE THRU PIC CAPACITOR VOLTAGE MEASUREMENTS.

REFERENCES:

REPORT DATE 03/10/88

E-50

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/06/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 3148 ABORT: 2/1R

ITEM: SW-FIRE SUPPRESSION AV BAY 1, 2, 3 AGENT DISCH
FAILURE MODE: INADVERTENT OPERATION, PREMATURE OPERATION,
ERRONEOUS OUTPUT, FAILS CLOSED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) FIRE SUPPRESSION
- 3) SWITCH
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: PNL L1A1
PART NUMBER: 31V73A1A1

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE FAILURE ENABLES THE FIRE SUPPRESSANT CONTAINER "FIRE" COMMAND TO THE ASSOCIATED PIC. THIS FAILURE COUPLED WITH A FAILURE OF THE ONE SECOND TIME DELAY WILL INHIBIT THE DISCHARGE CAPABILITY OF THE CONTAINER. THE PORTABLE BOTTLES PROVIDE FURTHER PROTECTION ON ORBIT AND ON THE GROUND THUS THE CRITICALITY BECOMES 3/1R.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/09/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 3154 ABORT: 2/1R

ITEM: DIODE-NO IDENTIFIER
FAILURE MODE: SHORTED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) GROUND CIRCUIT
- 4) FIRE CIRCUIT
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/1R	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	3/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [3] B [P] C [P]

LOCATION:
PART NUMBER:

CAUSES: MECHANICAL SHOCK, OVERLOAD, PIECE-PART FAILURE, THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

THE FAILURE TIES THE FLIGHT FIRE SUPPRESSANT CONTAINER ARM CIRCUIT TO THE PRE-FLIGHT BUS THROUGH THE TYPE III HYBRID DRIVER. DURING LIFT-OFF AND DEORBIT, IF SUBSEQUENT FAILURES OCCUR WHICH ENABLE LOADS SUFFICIENT TO TRIP THE ASSOCIATED CIRCUIT BREAKER THE PIC CANNOT BE ARMED. ALSO, ONE OTHER FAILURE WITH IN THE DRIVER (SHORTED DIODE) CAN TIE THE CIRCUIT BREAKER TO GROUND. IN ALL OTHER MISSION PHASES THE PORTABLE BOTTLES PROVIDE A BACKUP.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/15/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 3158 ABORT: 2/1R

ITEM: SMOKE DETECTOR (9)
FAILURE MODE: INADVERTENT OPERATION, PREMATURE OPERATION

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) SMOKE DETECTION
- 3) DETECTOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		
	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	2/1R	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:
PROVIDES AN ERRONEOUS FIRE OUTPUT. FAILURE TO OUTPUT OR THIS
SAME FAILURE OF THE REDUNDANT SENSOR COULD RESULT IN LOSS OF
CREW/VEHICLE. IF A FIRE SUPPRESSANT CONTAINER IS DISCHARGED INTO
THE BAY, APPROXIMATELY 50 HOURS OF FIRE PROTECTION REMAINS.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/08/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3163 ABORT: 3/1R

ITEM: HYBRID DRIVER (TYPE III) (3)
FAILURE MODE: INTERMITTENT OPERATION, SHORTED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) GROUND CIRCUIT
- 4) ARM COMMAND
- 5) HYBRID DRIVER (TYPE III)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: FWD LCA NO. 1, 2, 3
PART NUMBER: 81V76A16, 17, 18

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE FAILURE IS ONLY A PROBLEM IF THE PREFLIGHT BUS IS POWERED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/08/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 3164 ABORT: 2/1R

ITEM: HYBRID DRIVER (TYPE I) (3)
FAILURE MODE: INADVERTENT OPERATION, SHORTED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) FIRE SUPPRESSION
- 3) GROUND CIRCUIT
- 4) FIRE COMMAND
- 5) HYBRID DRIVER (TYPE I)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	2/1R	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: FWD LCA NO. 1, 2, 3
PART NUMBER: 81V76A16, 17, 18

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

PRELAUNCH THE FAILURE PRECLUDES CHARGE UP OF THE FIRE SUPPRESSANT PIC SINCE A ONE SECOND TIMEDELAY CANNOT BE ACHIEVED. THEREFORE SUPPRESSANT CANNOT BE DISCHARGED INTO THE ASSOCIATED AVIONICS BAY. PORTABLE BOTTLES ARE AVAILABLE AS A BACKUP.
DURING ALL OTHER PHASES, THE INADVERTENT OUTPUT CANNOT EXIST WITHOUT A FAILURE THAT POWERS THE PREFLIGHT TEST BUS. THUS, THE FLIGHT CIRCUIT IS UNEFFECTED. ALSO ONORBIT THE PORTABLE BOTTLES ARE AVAILABLE AS A BACKUP.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/07/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 1/1
MDAC ID: 3165 ABORT: 1/1

ITEM: HYBRID DRIVER (TYPE II) (3)
FAILURE MODE: INADVERTENT OPERATION, SHORTED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) FLIGHT CIRCUIT
- 4) FIRE COMMAND
- 5) HYBRID DRIVER (TYPE II)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	2/1R	RTLS:	1/1
LIFTOFF:	1/1	TAL:	1/1
ONORBIT:	2/1R	AOA:	1/1
DEORBIT:	1/1	ATO:	1/1
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: FWD LCA NO. 1, 2, 3
PART NUMBER: 81V76A16, 17, 18

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE FAILURE PRECLUDES CHARGE UP OF THE FIRE SUPPRESSANT PIC SINCE THE ONE SECOND TIME DELAY IS BYPASSED. THEREFORE, SUPPRESSANT CANNOT BE DISCHARGED INTO THE ASSOCIATED AVIONICS BAY DURING LIFT OFF OR DEORBIT AND THE PORTABLE FIRE EXTINGUISHERS ARE INACCESSABLE AT THESE TIMES.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/07/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3166 ABORT: 3/3

ITEM: HYBRID DRIVER (TYPE I) - SMOKE DETECTOR GROUND
RESET
FAILURE MODE: INADVERTENT OPERATION, SHORTED

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) GROUND CIRCUIT
- 4) RESET CIRCUIT
- 5) HYBRID DRIVER (TYPE I)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION: FWD LCA NO. 1, 2, 3
PART NUMBER: 81V76A16, 17, 18

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE FAILURE ISSUES A CONTINUOUS RESET TO ALL SMOKE DETECTORS
DISABLING THE STATUS INDICATION FOR THE HARDWARE ALARMS. THE
CONCENTRATION FDA ALARMS FOR ALL SENSORS ARE UNEFFECTED.
POSSIBLE LOSS OF CREW/VEHICLE WITH LOSS OF ALL REDUNDANCY. THE
FAILURE CAN ONLY EXIST WHEN THE PRE-FLIGHT TEST BUS IS POWERED.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/07/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 3167 ABORT: 3/3

ITEM: HYBRID DRIVER (TYPE I) - SMOKE DETECTOR GROUND
RESET
FAILURE MODE: LOSS OF OUTPUT

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) FIRE SUPPRESSION
- 3) GROUND CIRCUIT
- 4) RESET CIRCUIT
- 5) HYBRID DRIVER (TYPE I)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION: FWD LCA NO. 1, 2, 3
PART NUMBER: 81V76A16, 17, 18

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE

EFFECTS/RATIONALE:

SMOKE DETECTORS CANNOT BE RESET BY PRE-FLIGHT TEST BUS CIRCUIT.
RESET CAN BE PERFORMED USING THE IN FLIGHT CIRCUIT DURING
PRELAUNCH. DURING THE OTHER PHASES THE CIRCUIT IS INACTIVE BY
DESIGN.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/15/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3168 ABORT: 3/1R

ITEM: NASA STANDARD INITIATOR
FAILURE MODE: INADVERTENT OPERATION, PREMATURE OPERATION

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) FIRE SUPPRESSION
- 3) SUPPRESSANT CONTAINER
- 4) NSI
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, ELECTROMAGNETIC FIELDS, CHEMICAL REACTION

EFFECTS/RATIONALE:

LOSS OF FIRE SUPPRESSANT WITHIN THE ASSOCIATED AVIONICS BAY.
AFTER RELEASE, THE BAY IS PROTECTED FOR UP TO 50 HOURS.
PRELAUNCH THE LAUNCH TOWER EQUIPMENT PROVIDES ONE MORE LEVEL OF
SAFETY. FOR LIFTOFF THE RELEASE IS A FAIL SAFE CONDITION. FOR
DEORBIT, IF THE CONTAINER HAS BEEN RELEASED, ONE OF THE PORTABLE
BOTTLE CAN BE INJECTED INTO THE AFFECTED BAY AND THIS PROVIDES
APPROXIMATELY 24 HOURS PROTECTION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/15/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/1R
MDAC ID: 3258 ABORT: 3/1R

ITEM: SMOKE DETECTOR (9)
FAILURE MODE: PARTIAL OUTPUT, LOSS OF CONCENTRATION OUTPUT

LEAD ANALYST: J.D. ARBET SUBSYS LEAD: M.J. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) SMOKE DETECTION
- 3) DETECTOR
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	3/1R
LIFTOFF:	3/1R	TAL:	3/1R
ONORBIT:	3/1R	AOA:	3/1R
DEORBIT:	3/1R	ATO:	3/1R
LANDING/SAFING:	3/1R		

REDUNDANCY SCREENS: A [3] B [F] C [P]

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
THERMAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

LOSS OF ONE OF FOUR ALARM SOURCES. THE FIRE STATUS OUTPUT OF
THIS SENSOR PLUS THE FIRE STATUS & CONCENTRATION OUTPUTS OF THE
REDUNDANT SENSOR ARE STILL AVAILABLE TO ANNUNCIATE A FIRE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 2/15/88
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 3268

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 1/1
ABORT: 1/1

ITEM: NASA STANDARD INITIATOR
FAILURE MODE: FAILS TO FIRE

LEAD ANALYST: J.D. ARBET

SUBSYS LEAD: M.J. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) FIRE SUPPRESSION
- 3) SUPPRESSANT CONTAINER
- 4) NSI
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/1R	RTLS:	1/1
LIFTOFF:	1/1	TAL:	1/1
ONORBIT:	2/1R	AOA:	1/1
DEORBIT:	1/1	ATO:	1/1
LANDING/SAFING:	2/1R		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

LOSS OF CAPABILITY TO SUPPRESS AN AV BAY FIRE DURING LIFTOFF, INCLUDING ABORTS, AND DEORBIT. PORTABLE BOTTLES AVAILABLE IN OTHER PHASES PLUS LAUNCH TOWER SYSTEMS ARE AVAILABLE PRELAUNCH.

REFERENCES:

E.4

AIRLOCK SUPPORT SYSTEM
ANALYSIS WORKSHEETS

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5085 ABORT: 3/3

ITEM: EMU WATER SUPPLY STATUS INDICATOR (2)
FAILURE MODE: SHORT TO GROUND

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4) SUPPLY VALVE
- 5) STATUS INDICATOR (DS1, DS3)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

WITH LINE SHORTED TO GROUND, AS THE SWITCH IS MADE, THE BREAKER
WILL OPEN DUE TO HIGH DEMAND AND THE VALVE WILL NOT ACTUATE. EMU
SUIT CAN NOT BE SERVICED, THUS LOSS OF MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5086 ABORT: 3/3

ITEM: EMU WASTE WATER STATUS INDICATOR
FAILURE MODE: SHORTS TO GROUND

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4) WASTE VALVE
- 5) INDICATOR STATUS (DS2, DS4)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:

PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

WITH THE LINE SHORTED TO GROUND, AS THE SWITCH IS MADE, THE
BREAKER WILL OPEN DUE TO HIGH DEMAND, AND THE VALVE WILL NOT
ACTUATE. EMU SUIT CAN NOT BE SERVICED, THUS LOSS OF MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5087 ABORT: 3/3

ITEM: EMU WATER SUPPLY LINES & FITTINGS
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, PIECE-PART FAILURE, MECHANICAL SHOCK,
VIBRATION

EFFECTS/RATIONALE:
LOSS OF MISSION DUE TO INABILITY TO SERVICE THE EMU'S. TWO
CREWMEN ARE ASSUMED TO BE SUITED (BASELINE) AND NEITHER HAS A
SPARE SCU.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5088 ABORT: 3/3

ITEM: LCG SUPPLY & RETURN, LINES & FITTINGS
FAILURE MODE: EXTERNAL LEAK

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES

FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: MECHANICAL SHOCK, PIECE-PART STRUCTURAL FAILURE,
VIBRATION

EFFECTS/RATIONALE:

LOSS OF MISSION DUE TO INABILITY TO PERFORM FUNCTION. ASSUMING A TWO MAN CREW (BASELINE MISSION), RECOVERY CAN NOT BE PERFORMED SINCE EACH SCU CONNECTION HAS NO REDUNDANCY AND SHATLING ONE SCU WOULD BE CREW ACTION WHICH IS AGAINST SPEC. NSTS 22206.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5089 ABORT: 3/3

ITEM: LCG SUPPLY & RETURN, LINES & FITTINGS
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

LOSS OF MISSION DUE TO INABILITY TO PERFORM FUNCTION. ASSUMING A TWO MAN CREW (BASELINE MISSION), RECOVERY CAN NOT BE PERFORMED SINCE EACH SCU CONNECTION HAS NO REDUNDANCY AND SHATLING ONE SCU WOULD BE CREW ACTION WHICH IS AGAINST SPEC. NSTS 22206.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5090 ABORT: 3/3

ITEM: EMU WASTE WATER LINE & FITTINGS
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) WATER SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	2/2	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION

EFFECTS/RATIONALE:

LOSS OF MISSION DUE TO INABILITY TO SERVICE THE EMU'S. A TWO MAN CREW (BASELINE MISSION) IS ASSUMED TO BE SUITED AND NEITHER HAS A SPARE SCU.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 3/3
MDAC ID: 5091 ABORT: 3/3

ITEM: O2 QUICK COUPLINGS (NOT USED FOR SCU) AND CAP
FAILURE MODE: INABILITY TO CLOSE, INTERNAL LEAKAGE

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) OXYGEN
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, MECHANICAL SHOCK, PIECE-PART FAILURE,
VIBRATION

EFFECTS/RATIONALE:

THE COUPLINGS ARE NOT USED ANY TIME DURING THE MISSION. THERE ARE HARDWARE ITEMS TO PREVENT LEAKS ON THIS VALVE, COUPLING AND CAP. FUNCTIONALLY THIS FAILURE IS NOT IMPORTANT SINCE BY DEFINITION THIS LEAK IS "INTERNAL". THUS THE CREW IS NOT EVEN AWARE OF THE FAILURE, I.E.: BY DEFINITION "INTERNAL LEAK" MEANS NOT ALL THE SEALS CAN FAIL (THIS WOULD BE EXTERNAL LEAKAGE). INABILITY TO CLOSE IS MOOT SINCE THE CAP WOULD NEVER BE TAKEN OFF DURING FLIGHT (CREW USES THE SCU).

REFERENCES:

REPORT DATE 03/10/88

E-69

C-4

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: /NA
MDAC ID: 5092 ABORT: /NA

ITEM: O2 QUICK COUPLING AND CAP (NOT USED FOR SCU)
FAILURE MODE: INABILITY TO OPEN

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) OXYGEN
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:
THIS FAILURE IS MOOT SINCE THE COUPLINGS ARE NEVER USED DURING FLIGHT.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5093

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: 3/3
ABORT: 3/3

ITEM: CAP VENT DEBRIS SCREEN
FAILURE MODE: DAMAGED ELEMENT, OPEN

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) DEPRESS SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, CHEMICAL REACTION, PIECE-PART FAILURE,
MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:
THIS FAILURE MODE IS QUESTIONABLE. HOWEVER, NO MISSION IMPACT.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88
SUBSYSTEM: LIFE SUPPORT
MDAC ID: 5094

HIGHEST CRITICALITY HDW/FUNC
FLIGHT: /NA
ABORT: /NA

ITEM: AIRLOCK TO AMBIENT CAP
FAILURE MODE: EXTERNAL LEAK

LEAD ANALYST: R. DUFFY SUBSYS LEAD:

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3)
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

FAILURE IS NOT REALISTIC SINCE THE CAP NOMINALLY WOULD NOT BE
REMOVED DURING MISSION.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5095 ABORT: 2/2

ITEM: VACUUM VENT ISOLATION VALVE (1)
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) VACUUM VENT ISOLATION VALVE
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	2/2	TAL:	3/3
ONORBIT:	2/2	AOA:	2/2
DEORBIT:	2/2	ATO:	2/2
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: PIECE-PART FAILURE, MECHANICAL SHOCK, VIBRATION

EFFECTS/RATIONALE:

THE FAILURE IS QUESTIONABLE. PER NSTS 22206 THE LEAK CAN NOT BE THROUGH THE PACKING IN THE VALVES PENETRATION. THE ONLY OTHER PLACES COULD BE THE CASING ITSELF WHICH IS UNREALISTIC OR THE O-RING WHICH SEALS THE VALVE TO THE BULKHEAD. THE O-RING (LACK OF) IS NOT BIG ENOUGH TO DRAIN THE CABIN FASTER THAN CONSUMMABLES FLOW. HOWEVER, ASSUMING CREW INABILITY TO CORRECT THE FAILURE LEADS TO THE ASSIGNMENT OF AN IMMEDIATE LOSS OF MISSION DUE TO AN UNCONTROLLABLE LEAK.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/1R
MDAC ID: 5096 ABORT: 2/1R

ITEM: LINES & FITTINGS, 2 INCH DEPRESSURIZATION
FAILURE MODE: EXTERNAL LEAKAGE

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) VACUUM VENT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

CRITICALITIES			
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	3/3	RTLS:	2/1R
LIFTOFF:	2/1R	TAL:	2/1R
ONORBIT:	2/1R	AOA:	2/1R
DEORBIT:	2/1R	ATO:	2/1R
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [2] B [P] C [P]

LOCATION:

PART NUMBER:

CAUSES: MECHANICAL SHOCK, VIBRATION, PIECE-PART FAILURE

EFFECTS/RATIONALE:

THE LEAK CAN BE CONTROLLED WITH THE VACUUM VENT ISOLATION VALVE. LOSS OF FUNCTION CREATES A LEAK IN THE CABIN WITH THE POTENTIAL LOSS OF LIFE/VEHICLE. EVEN THOUGH THE VACUUM ISOLATION VALVE HAS A GAS DRAIN ORIFICE, THERE IS A POTENTIAL BUILD UP OF H2 IF THE LEAK IS DOWNSTREAM OF THIS INTERFACE, WHICH ALSO HAS THE POTENTIAL FOR LOSS OF LIFE/VEHICLE IF H2 IGNITES. THUS, MISSION IS TERMINATED ON FIRST FAILURE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: 1/14/88 HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: /NA
MDAC ID: 5097 ABORT: /NA

ITEM: LINES & FITTINGS, 2 INCH DEPRESSURIZATION
FAILURE MODE: RESTRICTED FLOW

LEAD ANALYST: R. DUFFY SUBSYS LEAD: M. SAIIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT
- 2) AIRLOCK
- 3) VACUUM VENT
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

	CRITICALITIES		
FLIGHT PHASE	HDW/FUNC	ABORT	HDW/FUNC
PRELAUNCH:	/NA	RTLS:	/NA
LIFTOFF:	/NA	TAL:	/NA
ONORBIT:	/NA	AOA:	/NA
DEORBIT:	/NA	ATO:	/NA
LANDING/SAFING:	/NA		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES:

EFFECTS/RATIONALE:

NO CRITICALITY HAS BEEN ASSIGNED BECAUSE THIS FAILURE IS NOT CREDIBLE. THE LINE IS 2 INCHES IN DIAMETER AND WOULD REQUIRE LARGE SIZE DEBRIS FOR EFFECTIVE PLUGGING. ON THE OTHER HAND, HYDROGEN IS A VERY LIGHT MOLECULE AND CAN PERMEATE THROUGH ANY SIZE CRACK. IF IOA HAD TO ASSIGNED A CRITICALITY, IT WOULD BE A 2/2 (LOSS OF MISSION) SINCE THE AIRLOCK WOULD BE UNABLE TO DEPRESSURIZE.

REFERENCES:

INDEPENDENT ORBITER ASSESSMENT
ORBITER SUBSYSTEM ANALYSIS WORKSHEET

DATE: HIGHEST CRITICALITY HDW/FUNC
SUBSYSTEM: LIFE SUPPORT FLIGHT: 2/2
MDAC ID: 5098 ABORT: 3/3

ITEM: AIRLOCK DEPRESSURIZATION CAP
FAILURE MODE: INABILITY TO REMOVE

LEAD ANALYST: K. BARICKMAN SUBSYS LEAD: M. SAIDI

BREAKDOWN HIERARCHY:

- 1) LIFE SUPPORT SYSTEM
- 2) AIRLOCK
- 3) DEPRESS SYSTEM
- 4)
- 5)
- 6)
- 7)
- 8)
- 9)

FLIGHT PHASE	CRITICALITIES		HDW/FUNC
	HDW/FUNC	ABORT	
PRELAUNCH:	3/3	RTLS:	3/3
LIFTOFF:	3/3	TAL:	3/3
ONORBIT:	3/3	AOA:	3/3
DEORBIT:	3/3	ATO:	3/3
LANDING/SAFING:	3/3		

REDUNDANCY SCREENS: A [] B [] C []

LOCATION:
PART NUMBER:

CAUSES: CONTAMINATION, MISHANDLING/ABUSE

EFFECTS/RATIONALE:

THE FAILURE TO REMOVE THE CAP CREATES LOSS OF THE VALVE FUNCTION
AND POTENTIALLY LOSS OF MISSION DUE TO LOSS OF EVA CAPABILITY.

REFERENCES:

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE/RECOMMENDATIONS

This section provides a cross reference between the NASA FMEA and corresponding IOA analysis worksheet(s) included in Appendix E. The Appendix F identifies: NASA FMEA Number, IOA Assessment Number, NASA criticality and redundancy screen data, and IOA recommendations.

Appendix F Legend

Code Definition

None.

ORIGINAL PAGE IS
OF POOR QUALITY

APPENDIX F

NASA FMEA TO IOA WORKSHEET CROSS REFERENCE / RECOMMENDATIONS

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
	LS-1107	/				/					
	LS-1138	/				/					
	LS-1141	/				/					
	LS-1143	/				/					
	LS-1147	/				/					
	LS-1237	/				/					
	LS-2023	/				/NA					
	LS-2025	/				/NA					
	LS-2027	/				/NA					
	LS-2033	/				3/2R	P P P				X
	LS-2034	/				3/2R	P P P				X
	LS-2039	/				3/2R	P NA P				X
	LS-2065	/				3/3					X
	LS-2066	/				3/3					X
	LS-2068	/				3/2R	P NA P				X
	LS-2083	/				3/3					X
	LS-2088	/				3/2R	P P P				X
	LS-2089	/				3/2R	P P P				X
	LS-2099	/				3/3					X
	LS-2100	/				3/2R	P NA P				X
	LS-2101	/				3/2R	P NA P				X
	LS-2115	/				3/2R	P P P				X
	LS-2133	/				3/3					X
	LS-2143	/				3/3					X
	LS-2176	/				/NA					
	LS-2177	/				/NA					
	LS-2184	/				3/2R	P P P				X
	LS-2185	/				3/2R	P P P				X
	LS-2200	/				/NA					
	LS-2208	/				/NA					
	LS-2212	/				3/3					X
	LS-2213	/				2/1R	P P P				X
	LS-2219	/				1/1					X
	LS-2221	/				3/3					X
	LS-5022	/				2/1R	P P P				X
	LS-5056	/				2/2					X
	LS-5057	/				3/2R	P P P				X
	LS-5058	/				3/2R	P P P				X
	LS-5059	/				2/2					X
	LS-5060	/				2/2					X
	LS-5061	/				3/3					X
	LS-5062	/				3/3					X
	LS-5063	/				3/3					X
	LS-5064	/				3/3					X
	LS-5076	/				3/3					X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS		
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C
	LS-5082	/				3/3			
	LS-5083	/				3/3			
01-1-1602-2	LS-5038	3/1R	P	P	P	3/3			
05-06-2026-3	LS-3144X	3/1R	P	P	P	/			
05-06-2027-3	LS-3012	3/1R	P	F	P	/			
05-06-2204-2	LS-3163X	3/1R	P	NA	P	/			
05-06-2254-2	LS-3052	1/1				/			
05-06-2254-3	LS-3053	3/1R	P	N	P	3/3			
05-06-2310-1	LS-3049	3/3				/			
05-6UA-2000-1	LS-5009	3/1R	P	NA	P	2/2			
05-6UA-2000-2	LS-5010	3/3				3/3			
05-6UA-2001-1	LS-5017	3/2R	P	NA	P	2/2			
05-6UA-2001-2	LS-5018	3/3				3/3			
05-6UA-2005-1	LS-5008	3/3				3/3			
	LS-5016	3/3				3/3			
05-6UA-2008-1	LS-5006	3/1R	P	NA	P	2/2			
	LS-5055	3/1R	P	NA	P	2/2			
05-6UA-2008-2	LS-5006A	3/1R	P	N	P	2/2			
	LS-5055A	3/1R	P	NA	P	2/2			
05-6UA-2009-1	LS-5014	3/1R	P	NA	P	2/2			
05-6UA-2009-2	LS-5014A	3/2R	P	NA	P	2/2			
05-6UA-2012-1	LS-5085X	3/1R	P	NA	P	2/2			
05-6UA-2012-2	LS-5007	3/3				3/3			
05-6UA-2013-1	LS-5086X	3/1R	P	NA	P	2/2			
05-6UA-2013-2	LS-5015	3/3				3/3			
05-6UA-2016-1	LS-5023	3/3				3/3			
05-6UA-2017-1	LS-5001	3/3				3/3			
05-6V-2000-1	LS-3001	2/1R	P	P	P	2/1R	P	F	P
	LS-3003	2/1R	P	P	P	2/1R	P	F	P
	LS-3005	2/1R	P	P	P	2/1R	P	F	P
05-6V-2000-2	LS-3002	3/3				/			
	LS-3004	3/3				/			
	LS-3006	3/3				/			
05-6V-2001-2	LS-3007	1/1				/			
05-6V-2001-3	LS-3008	3/3				/			
05-6V-2026-4	LS-3044	1/1				/			
05-6V-2027-1	LS-3011	3/1R	P	P	P	/			
05-6V-2027-4	LS-3112X	1/1				/			
05-6V-2028-3	LS-3148X	3/1R	P	NA	P	2/1R	P	P	P
05-6V-2028-4	LS-3048	1/1				/			
05-6V-2029-1	LS-3013	3/3				/			
05-6V-2029-2	LS-3013A	3/3				/			
05-6V-2029-3	LS-3014	3/1R	P	P	P	/			
05-6V-2029-4	LS-3114X	3/1R	P	P	P	/			
05-6V-2071-1	LS-3045	3/3				/			
05-6V-2072-1	LS-3047	3/3				/			
05-6V-2073-1	LS-3055	2/1R	P	N	P	3/1R	P	P	P
05-6V-2074-1	LS-3026	3/3				/			
	LS-3038	3/3				/			
05-6V-2075-1	LS-3028	3/3				/			

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *					ISSUE	
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				OTHER (SEE LEGEND CODE)
05-6V-2075-1	LS-3029	3/3				/					
	LS-3034	3/3				/					
05-6V-2075-2	LS-3027	3/1R	P	F	P	3/1R	P	P	P		X
	LS-3033	3/1R	P	F	P	3/1R	P	P	P		X
05-6V-2076-1	LS-3023	3/3				/					
	LS-3025	3/3				/					
05-6V-2077-1	LS-3021	3/3				/					
05-6V-2077-2	LS-3022	3/3				/					
05-6V-2078-1	LS-3009	3/3				/					
05-6V-2201-1	LS-3166X	3/1R	P	F	P	3/1R	P	P	P		X
05-6V-2201-2	LS-3167X	3/3				/					
05-6V-2202-1	LS-3165X	1/1				/					
05-6V-2202-3	LS-3065	1/1				/					
05-6V-2203-1	LS-3064	2/1R	P	NA	P	3/1R	P	P	P		X
05-6V-2203-2	LS-3164X	1/1				2/1R	P	P	P		X
05-6V-2204-1	LS-3063	2/1R	P	NA	P	3/1R	P	P	P		X
05-6V-2251-1	LS-3030	3/1R	P	F	P	3/1R	P	P	P		X
	LS-3036	3/1R	P	F	P	3/1R	P	P	P		X
05-6V-2251-2	LS-3031	3/3				/					
	LS-3037	3/3				/					
05-6V-2252-1	LS-3019	3/3				3/3					
05-6V-2252-2	LS-3020	3/1R	P	NA	P	/					
05-6V-2253-1	LS-3054	2/1R	P	N	P	3/1R	P	P	P		X
05-6V-2253-2	LS-3154X	2/1R	P	NA	P	2/1R	F	P	P		X
05-6V-2255-1	LS-3017	3/1R	P	P	P	/					
05-6V-2255-2	LS-3018	3/3				/					
05-6V-2302-2	LS-3057	3/1R	P	N	P	1/1					X
05-6V-2302-3	LS-3056	1/1				/					
05-6V-2311-1	LS-3042	3/1R	P	F	P	3/1R	P	P	P		X
05-6VC-2001-1	LS-2189	2/1R	P	NA	P	3/2R	P	NA	P		X
05-6VC-2001-2	LS-2190	3/3				3/3					
05-6VC-2002-1	LS-2171	2/2				2/2					
05-6VC-2002-2	LS-2172	3/3				3/3					
05-6VC-2003-1	LS-2151	3/2R	P	P	P	3/2R	P	NA	P		X
05-6VC-2003-2	LS-2152	3/3				3/3					
05-6VC-2004-1	LS-2160	3/3				3/3					
	LS-2161	3/3				3/3					
05-6VC-2005-1	LS-5071	3/1R	P	NA	P	3/1R	P	NA	P		
05-6VC-2005-2	LS-5072	3/3				3/1R	P	NA	P		X
05-6VC-2006-1	LS-2218	3/3				1/1					X
05-6VC-2006-2	LS-2217	3/3				3/3					
05-6VC-2007-1	LS-2109	3/2R	P	NA	P	3/2R	P	NA	P		
05-6VC-2007-2	LS-2110	3/3				3/1R	P	P	P		X
05-6VC-2008-1	LS-2105	3/2R	P	NA	P	3/2R	P	NA	P		
05-6VC-2008-2	LS-2106	3/3				3/1R	P	P	P		X
05-6VC-2020-1	LS-2162	3/3				3/3					
	LS-2163	3/3				3/3					
	LS-2164	3/3				3/3					
	LS-2165	3/3				3/3					
05-6VC-2021-1	LS-2153	3/2R	P	P	P	3/2R	P	NA	P		X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C		
								OTHER (SEE LEGEND CODE)	ISSUE
05-6VC-2021-1	LS-2156	3/2R	P	P	P	3/2R	P	NA P	X
05-6VC-2021-2	LS-2154	3/2R	P	NA	P	3/2R	P	NA P	
	LS-2155	3/2R	P	NA	P	3/2R	P	NA P	
05-6VC-2021-3	LS-2154A	3/2R	P	NA	P	3/2R	P	NA P	
	LS-2155A	3/2R	P	NA	P	3/2R	P	NA P	
05-6VC-2022-1	LS-2173	2/2				2/2			
	LS-2174	2/2				2/2			
	LS-2175	2/2				2/2			
05-6VC-2022-2	LS-2173A	3/2R	P	NA	P	3/2R	P	NA P	
	LS-2174A	3/2R	P	NA	P	3/2R	P	NA P	
	LS-2175A	3/2R	P	NA	P	3/2R	P	NA P	
05-6VC-2023-1	LS-2195	2/1R	P	NA	P	2/1R	P	NA P	
	LS-2196	2/1R	P	NA	P	2/1R	P	NA P	
	LS-2197	2/1R	P	NA	P	2/1R	P	NA P	
	LS-2198	2/1R	P	NA	P	2/1R	P	NA P	
	LS-2199	2/1R	P	NA	P	2/1R	P	NA P	
	LS-2201	2/1R	P	NA	P	2/1R	P	NA P	
05-6VC-2023-2	LS-2195A	3/1R	P	NA	P	3/1R	P	NA P	
	LS-2196A	3/1R	P	NA	P	3/1R	P	NA P	
	LS-2197A	3/1R	P	NA	P	3/1R	P	NA P	
	LS-2198A	3/1R	P	NA	P	3/1R	P	NA P	
	LS-2199A	3/1R	P	NA	P	3/1R	P	NA P	
	LS-2201A	3/1R	P	NA	P	3/1R	P	NA P	
05-6VC-2024-1	LS-2191	2/1R	P	P	P	3/1R	P	NA P	X
	LS-2192	2/1R	P	P	P	3/1R	P	NA P	X
	LS-2193	2/1R	P	P	P	3/1R	P	NA P	X
05-6VC-2024-2	LS-2191A	3/3				3/2R	P	NA P	X
05-6VC-2025-1	LS-2220	3/3				1/1			X
05-6VC-2025-2	LS-2220A	3/3				1/1			X
05-6VC-2026-1	LS-5067	2/1R	P	P	P	/			X
	LS-5068	2/1R	P	P	P	/			X
05-6VC-2026-2	LS-5068A	2/1R	P	P	P	/			X
05-6VC-2027-1	LS-5069	2/1R	P	NA	P	/			X
05-6VC-2027-2	LS-5070	3/1R	P	NA	P	3/1R	P	NA P	
05-6VC-2030-1	LS-5074	3/3				3/3			
05-6VC-2030-2	LS-5075	3/3				3/3			
05-6VC-2031-1	LS-2202	3/3				3/3			
05-6VC-2031-2	LS-2202A	3/3				3/2R	P	NA P	X
05-6VC-2032-1	LS-5073	3/3				3/3			
05-6VC-2032-2	LS-5073A	3/3				3/3			
05-6VC-2033-1	LS-5077	3/3				3/3			
	LS-5078	3/3				3/3			
05-6VC-2033-2	LS-5077A	3/3				3/3			
	LS-5078A	3/3				3/3			
05-6VC-2034-1	LS-2166	3/3				3/3			
	LS-2167	3/3				3/3			
	LS-2168	3/3				3/3			
05-6VC-2035-1	LS-2157	3/3				3/3			
	LS-2158	3/3				3/3			
	LS-2159	3/3				3/3			

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *					ISSUE	
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				OTHER (SEE LEGEND CODE)
05-6VC-2035-2	LS-2157A	3/2R	P	P	P	3/2R	P	P	P		
	LS-2158A	3/2R	P	P	P	3/2R	P	P	P		
	LS-2159A	3/2R	P	P	P	3/2R	P	P	P		
05-6VC-2036-1	LS-2178	3/3				3/3					
	LS-2179	3/3				3/3					
	LS-2180	3/3				3/3					
05-6VC-2036-2	LS-2178A	2/2				2/2					
	LS-2179A	2/2				2/2					
	LS-2180A	2/2				2/2					
05-6VC-2037-1	LS-2251X	3/3				3/3					
05-6VC-2037-2	LS-2252X	2/1R	P	P	P	2/1R	P	NA	P		X
05-6VC-2042-1	LS-2194	3/3				3/2R	P	P	P		X
05-6VC-2043-1	LS-5080	3/3				3/3					
05-6VC-2044-1	LS-5081	3/3				3/3					
05-6VC-2044-2	LS-5081A	3/1R	F	P	P	3/3					X
05-6VC-2045-1	LS-5079	3/3				3/3					
05-6VD-2001-1	LS-1173	3/1R	P	P	P	/					X
05-6VD-2001-2	LS-1174	3/3				/					
05-6VD-2002-1	LS-1163	3/1R	P	P	P	/					X
05-6VD-2002-2	LS-1164	3/3				/					
05-6VD-2003-1	LS-2181	3/1R	P	NA	P	3/2R	P	NA	P		X
05-6VD-2003-2	LS-2182	3/3				3/3					
05-6VD-2004-1	LS-1215	3/1R	P	NA	P	/					X
05-6VD-2004-2	LS-1216	3/3				/					
05-6VD-2005-1	LS-1189	3/1R	P	P	P	/					X
05-6VD-2005-2	LS-1190	3/3				/					
05-6VD-2006-1	LS-1124	3/1R	P	P	P	/					X
05-6VD-2006-2	LS-1125	3/3				/					
05-6VD-2007-1	LS-1126	3/1R	P	P	P	/					X
05-6VD-2007-2	LS-1127	3/3				/					
05-6VD-2008-1	LS-1202	3/1R	P	P	P	/					X
05-6VD-2008-2	LS-1203	3/3				/					
05-6VD-2026-1	LS-1170	3/1R	P	NA	P	/					X
	LS-1171	3/1R	P	NA	P	/					X
05-6VD-2026-2	LS-1170A	3/1R	P	P	P	/					X
	LS-1172	3/1R	P	P	P	/					X
05-6VD-2027-1	LS-1157	3/1R	P	NA	P	/					X
	LS-1159	3/1R	P	NA	P	/					X
05-6VD-2027-2	LS-1157A	3/1R	P	P	P	/					X
	LS-1158	3/1R	P	P	P	/					X
05-6VD-2028-1	LS-1209	3/1R	P	NA	P	/					X
	LS-1210	3/1R	P	NA	P	/					X
05-6VD-2028-2	LS-1211	3/1R	P	NA	P	/					X
05-6VD-2029-1	LS-1212	3/1R	P	NA	P	/					X
05-6VD-2029-2	LS-1214	3/3				/					
05-6VD-2029-3	LS-1213	3/1R	P	NA	P	/					X
05-6VD-2030-1	LS-1196	3/1R	P	P	P	/					X
	LS-1198	3/1R	P	P	P	/					X
05-6VD-2030-2	LS-1196A	3/1R	P	NA	P	/					X
	LS-1197	3/1R	P	NA	P	/					X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *				
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)		ISSUE	
05-6VD-2031-1	LS-1114	3/1R	P P P	/				X	
	LS-1115	3/1R	P P P	/				X	
05-6VD-2031-2	LS-1116	3/1R	P NA P	/				X	
05-6VD-2032-1	LS-1258X	3/1R	P P P	/				X	
	LS-1259X	3/1R	P P P	/				X	
05-6VD-2032-2	LS-1260X	3/1R	P NA P	/				X	
05-6VD-2033-1	LS-1183	3/2R	P P P	/					
	LS-1185	3/2R	P P P	/					
05-6VD-2033-2	LS-1183A	3/1R	P NA P	/				X	
	LS-1184	3/1R	P NA P	/				X	
05-6VD-2036-1	LS-1175	3/1R	P P P	/				X	
05-6VD-2036-2	LS-1175A	3/3		/					
05-6VD-2037-1	LS-1160	3/1R	P P P	/				X	
05-6VD-2037-2	LS-1160A	3/3		/				X	
05-6VD-2038-1	LS-1217	3/1R	P NA P	/				X	
05-6VD-2038-2	LS-1217A	3/3		/					
05-6VD-2039-1	LS-1117	3/1R	P P P	/				X	
05-6VD-2039-2	LS-1117A	3/3		/					
05-6VD-2040-1	LS-1117B	3/1R	P P P	/				X	
05-6VD-2040-2	LS-1117C	3/3		/					
05-6VD-2041-1	LS-1199	3/1R	P P P	/				X	
05-6VD-2041-2	LS-1199A	3/3		/					
05-6VD-2042-1	LS-1186	3/1R	P P P	/				X	
05-6VD-2042-2	LS-1186A	3/3		/					
05-6VD-2044-1	LS-1118	3/3		/					
	LS-1162	3/3		/					
	LS-1176	3/3		/					
	LS-1188	3/3		/					
	LS-1201	3/3		/					
	LS-1218	3/3		/					
05-6VD-2048-1	LS-1119	3/3		/					
	LS-1161	3/3		/					
	LS-1177	3/3		/					
	LS-1187	3/3		/					
	LS-1200	3/3		/					
	LS-1219	3/3		/					
06-1-1104-1	LS-5044	3/2R	P P P	3/3				X	
06-1-1114-1	LS-5044A	3/2R	P P P	3/3				X	
06-1-1120-1	LS-5053	3/2R	P P P	3/3				X	
06-1-1120-4	LS-5054	2/2		3/2R	P P P			X	
06-1-1121-1	LS-5053A	3/3		3/3					
06-1-1121-4	LS-5054A	2/2		3/2R	P P P			X	
06-1-1122-1	LS-5050	3/1R	P P P	3/2R	P P P			X	
06-1-1122-2	LS-5051	2/1R	P NA P	2/2				X	
06-1-1122-4	LS-5052	1/1		2/2				X	
06-1-1123-1	LS-5048	3/1R	P P P	3/2R	P P P			X	
06-1-1123-2	LS-5049	3/1R	P P P	3/3				X	
06-1-1124-1	LS-5047	2/1R	P P P	3/3				X	
06-1-1124-2	LS-5046	3/1R	P P P	3/2R	P P P			X	
06-1-1124-3	LS-5094X	2/1R	P F P	/NA				X	

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *					ISSUE	
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C				OTHER (SEE LEGEND CODE)
06-1-1126-1	LS-5033	3/1R	P	P	P	2/2					X
06-1-1126-2	LS-5034	3/1R	P	P	P	3/1R	P	P	P		
06-1-1126-4	LS-5032A	2/1R	P	P	P	3/1R	P	F	P		X
06-1-1127-1	LS-5030	3/1R	P	P	P	2/2					X
	LS-5031	3/1R	P	P	P	2/2					X
06-1-1127-2	LS-5093X	3/1R	P	P	P	3/3					X
06-1-1128-1	LS-5034A	3/1R	P	P	P	3/1R	P	P	P		
	LS-5098X	3/1R	P	P	P	2/2					X
06-1-1128-2	LS-5029	3/1R	P	P	P	2/2					X
06-1-1128-3	LS-5032	3/1R	P	F	P	3/1R	P	F	P		
06-1-1201-1	LS-5025	3/2R	P	P	P	2/2					X
06-1-1201-2	LS-5026	2/1R	P	F	P	3/2R	P	P	P		X
06-1-1201-3	LS-5027	1/1				1/1					
06-1-1202-1	LS-5024	3/3				3/3					
06-1-1205-1	LS-5091X	3/1R	F	NA	P	3/3					X
06-1-1205-2	LS-5092X	3/3				/NA					X
06-1-1205-3	LS-5028	2/1R	P	P	P	2/1R	P	P	P		
06-1-1206-1	LS-5003	3/1R	P	NA	P	2/2					X
06-1-1206-2	LS-5004	3/1R	P	P	P	3/2R	P	P	P		X
06-1-1206-3	LS-5005	2/1R	P	P	P	2/2					X
06-1-1207-1	LS-5002	3/1R	P	P	P	3/3					X
06-1-1208-1	LS-5020	3/1R	P	P	P	2/2					X
06-1-1208-2	LS-5087X	3/1R	P	P	P	2/2					X
06-1-1209-1	LS-5021	3/3				3/2R	P	P	P		X
06-1-1209-2	LS-5090X	3/2R	P	NA	P	2/2					X
06-1-1210-1	LS-5019	/NA				/NA					
06-1-1212-1	LS-5011	3/2R	P	P	P	2/2					X
06-1-1212-2	LS-5012	3/1R	P	NA	P	3/3					X
06-1-1212-3	LS-5013	3/3				3/2R	P	P	P		X
06-1-1402-1	LS-5088X	2/1R	P	NA	P	2/2					X
06-1-1402-2	LS-5089X	3/2R	P	P	P	2/2					X
06-1-1601-1	LS-5039	2/1R	P	NA	P	2/1R	P	NA	P		
06-1-1601-2	LS-5040	2/1R	P	P	P	3/2R	P	P	P		X
06-1-1601-4	LS-5041	1/1				2/2					X
06-1-1602-1	LS-5037	2/1R	P	NA	P	2/1R	P	NA	P		
06-1-1603-1	LS-5036	2/1R	P	P	P	3/2R	P	P	P		X
06-1-1603-2	LS-5035	3/1R	P	NA	P	2/1R	P	P	P		X
06-1-1603-3	LS-5035A	3/1R	P	P	P	2/1R	P	P	P		X
06-1-1604-1	LS-5042	3/2R	P	P	P	3/2R	P	P	P		
06-1-1604-3	LS-5043	2/1R	P	P	P	2/2					X
06-1-1605-1	LS-5042A	3/2R	P	P	P	3/2R	P	P	P		
06-1-1605-3	LS-5043A	2/1R	P	P	P	2/2					X
06-1-1630-1	LS-5096X	1/1				2/1R	P	P	P		X
06-1-1630-2	LS-5097X	2/1R	P	P	P	/NA					X
06-1-1631-1	LS-5066	2/1R	P	P	P	2/1R	P	F	P		X
06-1-1631-2	LS-5065	3/1R	P	P	P	3/2R	P	P	P		X
06-1-1631-3	LS-5095X	1/1				2/2					X
06-1-1632-1	LS-5045	3/3				3/3					
06-2-0101-1	LS-2007	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2012	3/2R	P	NA	P	3/2R	P	NA	P		

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *						
NASA	IDA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
06-2-0101-1	LS-2038	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2069	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0102-1	LS-2225X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0105-1	LS-2004	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0105-2	LS-2005	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0109-1	LS-2013	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0109-2	LS-2008	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2010	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0109-3	LS-2008A	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2010A	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0109-4	LS-2001	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2003	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2006	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2009	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2011	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0110-1	LS-2063	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2102	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2107	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2108	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0110-2	LS-2061	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2062	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2063A	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2107A	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2108A	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0110-3	LS-2062A	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2063B	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2102A	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2107B	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2108B	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0110-4	LS-2062B	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2063C	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2102B	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2107C	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2108C	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0115-1	LS-2239X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0115-2	LS-2075	/NA				/NA					
06-2-0116-1	LS-2002	3/3				3/2R	P	NA	P		X
06-2-0116-2	LS-2002A	3/3				3/2R	P	NA	P		X
06-2-0117-1	LS-2091	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2093	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2094	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2096	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0117-2	LS-2092	3/3				3/2R	P	NA	P		X
	LS-2095	3/3				3/2R	P	NA	P		X
06-2-0118-1	LS-2097	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0118-2	LS-2098	3/3				3/2R	P	NA	P		X
06-2-0119-1	LS-2077	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2078	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0119-2	LS-2077A	3/3				3/2R	P	NA	P		X
06-2-0119-3	LS-2077B	3/3				3/2R	P	NA	P		X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *				ISSUE		
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	
06-2-0119-4	LS-2241X	3/3				3/3					
06-2-0201-1	LS-2081	3/3				3/3					
06-2-0201-2	LS-2079	3/3				3/3					
	LS-2080	3/3				3/2R	P	NA	P		X
06-2-0202-1	LS-2020	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0202-2	LS-2019	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0202-3	LS-2019A	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0203-1	LS-2016	3/1R	P	NA	P	3/1R	P	NA	P		
	LS-2022	3/1R	P	NA	P	3/1R	P	NA	P		
	LS-2024	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0203-2	LS-2227X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0206-1	LS-2228X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0206-2	LS-2017	2/2				2/2					
	LS-2018	2/2				2/2					
06-2-0207-1	LS-2090	3/3				3/3					
06-2-0208-1	LS-2049	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0208-2	LS-2050	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0208-3	LS-2049A	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0208-4	LS-2050A	3/1R	P	NA	P	3/1R	P	NA	P		
	LS-2051	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0209-1	LS-2053	3/3				3/2R	P	NA	P		X
06-2-0209-2	LS-2052	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0209-3	LS-2053A	3/3				3/2R	P	NA	P		X
	LS-2054	3/3				3/2R	P	NA	P		X
06-2-0209-4	LS-2052A	3/2R	P	P	P	3/2R	P	NA	P		X
06-2-0210-1	LS-2234X	3/2R	P	P	P	3/2R	P	P	P		
06-2-0211-2	LS-2076	3/2R	P	P	P	3/2R	P	NA	P		X
06-2-0213-1	LS-2056	3/3				3/3					
06-2-0213-2	LS-2055	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0213-3	LS-2056A	3/3				3/3					
	LS-2057	3/3				3/3					
06-2-0213-4	LS-2055A	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0214-1	LS-2058	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2059	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0214-3	LS-2058A	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0214-4	LS-2060	3/3				3/3					
06-2-0215-1	LS-2067	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2253X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0216-1	LS-2045	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0216-2	LS-2045A	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0216-3	LS-2045B	3/3				3/2R	P	NA	P		X
06-2-0216-4	LS-2045C	3/3				3/2R	P	NA	P		X
06-2-0216-5	LS-2045D	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0216-6	LS-2045E	3/3				3/2R	P	NA	P		X
06-2-0216-7	LS-2045F	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0217-1	LS-2230X	3/3				3/3					
	LS-2231X	3/3				/NA					X
06-2-0218-2	LS-2026	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0219-1	LS-2028	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0219-2	LS-2021	3/2R	P	NA	P	3/2R	P	NA	P		

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *						
NASA	IDA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
06-2-0220-1	LS-2229X	3/3				3/3					
06-2-0221-1	LS-2254X	3/2R	P	P	P	3/2R	P	NA	P		X
06-2-0221-2	LS-2240X	3/3				3/3					
06-2-0302-1	LS-2072	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0302-2	LS-2070	3/2R	P	F	P	3/2R	P	F	P		
06-2-0311-1	LS-2118	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0311-2	LS-2117	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0311-3	LS-2116	2/2				2/2					
06-2-0312-1	LS-2121	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0312-3	LS-2120	3/1R	P	P	P	3/1R	P	P	P		
	LS-2125	3/1R	P	P	P	3/1R	P	P	P		
06-2-0312-4	LS-2119	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0313-1	LS-2124	3/3				3/3					
	LS-2149	3/3				3/3					
	LS-2150	3/3				3/3					
06-2-0314-1	LS-2248X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0314-2	LS-2126	3/2R	F	F	P	3/2R	F	N	P		X
06-2-0314-3	LS-2125A	3/1R	P	P	P	3/1R	P	P	P		
06-2-0315-1	LS-2129	3/3				3/3					
06-2-0315-2	LS-2128	3/2R	P	F	P	3/2R	P	F	P		
06-2-0315-3	LS-2127	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0401-1	LS-2046	3/3				3/3					
06-2-0401-2	LS-2047	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0401-4	LS-2048	2/1R	P	P	P	3/1R	P	NA	P		X
06-2-0402-1	LS-2209	2/1R	P	P	P	2/1R	P	P	P		
06-2-0403-1	LS-2029	3/3				3/3					
	LS-2030	3/3				3/3					
	LS-2031	3/3				3/3					
	LS-2032	3/3				3/3					
	LS-2036	3/3				3/3					
	LS-2037	3/3				3/3					
06-2-0404-1	LS-2035	3/1R	P	NA	P	3/1R	P	NA	P		
	LS-2207	3/1R	P	NA	P	3/1R	P	NA	P		
	LS-2210	3/1R	P	NA	P	3/1R	P	NA	P		
06-2-0411-1	LS-2139	2/2				2/2					
06-2-0411-2	LS-2140	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0411-3	LS-2138	2/2				2/2					
06-2-0417-1	LS-2146	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-0417-2	LS-2145	2/1R	P	NA	P	2/1R	P	NA	P		
	LS-2147	2/1R	P	NA	P	2/1R	P	NA	P		
06-2-0418-1	LS-2211	2/1R	P	P	P	1/1					X
06-2-0419-1	LS-2148	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-0420-1	LS-2130	3/3				3/3					
06-2-0420-2	LS-2131	3/2R	F	F	P	3/1R	F	F	P		X
06-2-0421-1	LS-2203	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2206	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0422-1	LS-2183	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2186	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0423-1	LS-2142	2/2				2/2					
06-2-0424-1	LS-2214	3/3				3/1R	P	NA	P		X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA	IOA	CRIT	SCREENS			CRIT	SCREENS			OTHER	ISSUE
FMEA NUMBER	ASSESSMENT NUMBER	HW/F	A	B	C	HW/F	A	B	C	(SEE LEGEND CODE)	
06-2-0425-1	LS-2222	3/3				1/1					X
06-2-0426-1	LS-2169	3/3				3/3					
	LS-2170	3/3				3/3					
06-2-0427-1	LS-2223	3/3				3/3					
	LS-2224	3/3				3/3					
06-2-0428-1	LS-2215	3/3				3/3					
	LS-2216	3/3				3/3					
06-2-0429-1	LS-2204	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2205	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0430-1	LS-2187	3/3				3/2R	P	NA	P		X
	LS-2188	3/3				3/2R	P	NA	P		X
06-2-0431-1	LS-2250X	2/1R	P	P	P	2/1R	P	P	P		
06-2-0431-2	LS-2249X	3/2R	F	F	P	3/2R	F	F	P		
06-2-0431-3	LS-2144	3/1R	P	NA	P	2/2					X
06-2-0432-1	LS-2134	3/2R	F	NA	P	3/2R	F	NA	P		
06-2-0435-1	LS-2040	2/2				3/2R	P	NA	P		X
	LS-2044	2/2				3/2R	P	NA	P		X
	LS-2112	2/2				2/2					
	LS-2114	2/2				2/2					
	LS-2232X	2/2				2/2					
06-2-0435-2	LS-2041	2/2				2/2					
	LS-2042	2/2				2/2					
	LS-2042A	2/2				2/2					
	LS-2043	2/2				2/2					
	LS-2111	2/2				2/2					
	LS-2113	2/2				2/2					
	LS-2132	2/2				2/2					
06-2-0436-1	LS-2246X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0436-2	LS-2122	3/2R	P	NA	P	3/2R	P	NA	P		
	LS-2123	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0437-1	LS-2247X	3/3				3/3					
06-2-0437-2	LS-2123A	3/2R	P	F	P	3/2R	P	F	P		
	LS-2135	3/2R	P	F	P	3/2R	P	F	P		
06-2-0438-1	LS-2137	2/1R	P	NA	P	2/2					X
	LS-2142A	2/1R	P	NA	P	2/2					X
06-2-0438-2	LS-2136	2/1R	P	P	P	2/2					X
	LS-2141	2/1R	P	P	P	2/2					X
06-2-0439-1	LS-2256X	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-0439-2	LS-2255X	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-0442-1	LS-2235X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0442-2	LS-2064	3/2R	P	F	P	3/2R	P	F	P		
	LS-2073	3/2R	P	F	P	3/2R	P	F	P		
	LS-2074	3/2R	P	F	P	3/2R	P	F	P		
06-2-0443-1	LS-2040A	2/2				3/2R	P	NA	P		X
	LS-2044A	2/2				3/2R	P	NA	P		X
	LS-2233X	2/2				3/2R	P	NA	P		X
06-2-0443-2	LS-2041A	2/2				2/2					
	LS-2043A	2/2				2/2					
	LS-2071	2/2				2/2					
06-2-0444-1	LS-2013A	3/2R	P	NA	P	3/2R	P	NA	P		

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IDA RECOMMENDATIONS *						
NASA FMEA NUMBER	IDA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
06-2-0444-1	LS-2226X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-0444-2	LS-2014	3/2R	P	F	P	3/2R	P	F	P		
	LS-2015	3/2R	P	F	P	3/2R	P	F	P		
06-2-0445-1	LS-2236X	2/2				3/2R	P	NA	P		X
	LS-2237X	2/2				3/2R	P	NA	P		X
06-2-0445-2	LS-2238X	2/2				2/2					
06-2-0446-1	LS-2242X	3/3				3/2R	P	NA	P		X
	LS-2243X	3/3				3/3					
06-2-0502-1	LS-2244X	3/3				3/3					
06-2-0502-2	LS-2082	3/3				3/3					
06-2-0503-1	LS-2084	3/3				3/3					
06-2-0503-2	LS-2085	3/3				3/3					
06-2-0504-1	LS-2086	3/3				3/3					
	LS-2087	3/3				3/3					
06-2-0505-1	LS-2104	3/3				3/3					
06-2-0505-2	LS-2103	3/3				3/3					
06-2-0505-3	LS-2245X	3/2R	P	NA	P	3/2R	P	NA	P		
06-2-1101-1	LS-1100	3/1R	P	P	P	2/1R	P	P	P		X
06-2-1101-2	LS-1101	2/1R	P	P	P	2/2					X
06-2-1101-3	LS-1102	3/1R	P	P	P	2/2					X
06-2-1101-4	LS-1103	2/1R	P	P	P	/					
06-2-1103-1	LS-1255X	3/1R	P	P	P	2/2					X
06-2-1103-2	LS-1103A	2/1R	P	P	P	/					
06-2-1106-1	LS-1109	3/1R	P	P	P	/					
06-2-1106-2	LS-1108	3/1R	P	NA	P	3/2R	P	NA	P		X
	LS-1120	3/1R	P	NA	P	3/2R	P	N	P		X
06-2-1106-3	LS-1109A	3/1R	P	P	P	/					
	LS-1109B	3/1R	P	P	P	/					
	LS-1121	3/1R	P	P	P	/					
06-2-1107-1	LS-1112	3/1R	P	P	P	/					
	LS-1123	3/1R	P	P	P	/					
06-2-1107-2	LS-1111	3/1R	P	NA	P	3/2R	P	P	P		X
	LS-1122	3/1R	P	NA	P	3/2R	P	P	P		X
	LS-1122B	3/1R	P	NA	P	3/2R	P	P	P		X
06-2-1107-3	LS-1111A	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1108-1	LS-1130	3/1R	P	P	P	/					
06-2-1108-3	LS-1129	3/1R	P	P	P	/					
06-2-1108-4	LS-1128	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1109-1	LS-1131	3/2R	P	P	P	/					
06-2-1110-1	LS-1121A	3/1R	P	P	P	/					
06-2-1110-2	LS-1108A	3/1R	P	NA	P	3/2R	P	NA	P		X
	LS-1120A	3/1R	P	NA	P	3/2R	P	N	P		X
06-2-1111-1	LS-1112A	3/1R	P	P	P	/					
	LS-1123A	3/1R	P	P	P	/					
06-2-1111-2	LS-1111B	3/1R	P	NA	P	3/2R	P	P	P		X
	LS-1122A	3/1R	P	NA	P	3/2R	P	P	P		X
06-2-1113-1	LS-1230	3/3				/					
06-2-1114-1	LS-1224	3/1R	P	P	P	/					
	LS-1225	3/1R	P	P	P	/					
06-2-1115-1	LS-1191	3/1R	P	P	P	/					

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *				
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C	CRIT HW/F	SCREENS A B C	OTHER (SEE LEGEND CODE)		ISSUE	
06-2-1115-1	LS-1195	3/1R	P P P	/					
06-2-1115-2	LS-1192	3/1R	P NA P	3/2R	P NA P				X
	LS-1194	3/1R	P N P	3/2R	P NA P				X
06-2-1116-1	LS-1223	3/1R	P P P	/					
06-2-1117-1	LS-1182	3/2R	P P P	/					
06-2-1117-1	LS-1179	3/2R	P P P	/					
06-2-1117-2	LS-1178	3/1R	P NA P	3/2R	P N P				X
	LS-1181	3/1R	P NA P	3/2R	P N P				X
06-2-1118-1	LS-1220	3/3		/					
06-2-1119-1	LS-1238	3/2R	P P P	/					
06-2-1120-1	LS-1221	3/1R	P P P	/					
	LS-1222	3/1R	P P P	/					
	LS-1226	3/1R	P P P	/					X
	LS-1227	3/1R	P P P	/					X
06-2-1122-1	LS-1134	3/1R	P P P	3/2R	P P P				X
06-2-1123-1	LS-1135	3/1R	P NA P	2/2					X
06-2-1123-2	LS-1136	2/1R	P P P	3/1R	P P P				X
06-2-1124-1	LS-1132	3/1R	P P P	/					
06-2-1124-2	LS-1133	3/2R	F F P	/					
06-2-1124-3	LS-1250X	3/1R	P P P	3/2R	P P P				X
06-2-1126-1	LS-1251X	3/1R	P NA P	/					
06-2-1126-2	LS-1253X	3/1R	P P P	3/2R	P N P				X
06-2-1128-1	LS-1252X	3/1R	P NA P	/					
06-2-1128-2	LS-1254X	3/1R	P NA P	3/2R	P N P				X
06-2-1130-1	LS-1139	3/3		/					
06-2-1130-2	LS-1140	3/1R	F F P	3/2R	F F P				X
	LS-1144	3/1R	F F P	3/2R	F F P				X
06-2-1130-2	LS-1142	3/1R	F F P	3/2R	F F P				X
06-2-1131-1	LS-1139A	3/3		/					
06-2-1131-2	LS-1140A	3/1R	F F P	3/2R	F F P				X
	LS-1142A	3/1R	F F P	3/2R	F F P				X
	LS-1144A	3/1R	F F P	3/2R	F F P				X
06-2-1132-1	LS-1100A	3/1R	P P P	2/1R	P P P				X
06-2-1132-2	LS-1105	2/1R	P P P	2/2					X
	LS-1106	2/1R	P P P	2/2					X
	LS-1110	2/1R	P P P	2/2					X
	LS-1137	2/1R	P P P	2/2					X
	LS-1233	2/1R	P P P	2/2					X
06-2-1133-1	LS-1204	3/1R	P P P	/					
	LS-1207	3/1R	P P P	/					
06-2-1133-2	LS-1205	3/1R	P P P	3/2R	P P P				X
	LS-1208	3/1R	P P P	3/2R	P P P				X
06-2-1135-1	LS-1229	3/1R	P NA P	/					
06-2-1135-2	LS-1228	3/1R	F F P	3/2R	F F P				X
06-2-1139-1	LS-1152	3/1R	P NA P	3/3					X
	LS-1156	3/1R	P NA P	3/3					X
06-2-1139-2	LS-1153	3/1R	P P P	3/2R	P P P				X
	LS-1155	3/1R	P P P	3/2R	P P P				X
06-2-1140-1	LS-1165	3/1R	P P P	/					
	LS-1168	3/1R	P P P	/					

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *						
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C			CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	ISSUE
06-2-1140-2	LS-1166	3/1R	P	NA	P	3/2R	P	NA	P		X
	LS-1169	3/1R	P	NA	P	3/2R	P	N	P		X
06-2-1141-1	LS-1135A	3/1R	P	NA	P	2/2					X
06-2-1141-2	LS-1136A	3/1R	P	P	P	/					
06-2-1146-1	LS-1104A	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1150-1	LS-1231	3/2R	P	P	P	/					
	LS-1232	3/2R	P	P	P	/					
06-2-1155-1	LS-1104	3/1R	P	P	P	3/2R	P	P	P		X
	LS-1179B	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1155-2	LS-1236A	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1156-1	LS-1135B	3/1R	P	P	P	2/2					X
06-2-1156-2	LS-1234	3/1R	P	P	P	2/2					X
06-2-1157-1	LS-1149	3/1R	P	P	P	3/2R	P	P	P		X
	LS-1151	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1157-2	LS-1150	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-1158-1	LS-1146	3/2R	P	P	P	3/1R	P	P	P		X
06-2-1158-2	LS-1145	3/2R	P	NA	P	/					
06-2-1158-3	LS-1148	3/1R	P	P	P	3/2R	P	P	P		X
06-2-1161-1	LS-1204A	3/1R	P	NA	P	/					
	LS-1229A	3/1R	P	NA	P	/					
06-2-1161-1	LS-1191A	3/1R	P	NA	P	/					
06-2-1161-2	LS-1206	3/1R	P	NA	P	3/2R	P	NA	P		X
06-2-1162-1	LS-1139B	3/3				/					
06-2-1162-2	LS-1228A	2/1R	P	P	P	3/2R	F	F	P		X
	LS-1233A	2/1R	P	P	P	2/2					X
06-2-1163-1	LS-1179A	3/2R	P	NA	P	/					
06-2-1163-2	LS-1180	3/2R	P	NA	P	/					
	LS-1236	3/2R	P	NA	P	/					
06-2-1164-1	LS-1139C	3/3				/					
06-2-1164-2	LS-1235A	3/1R	P	P	P	2/2					X
06-2-1165-1	LS-1112B	3/1R	P	P	P	/					
	LS-1152A	3/1R	P	P	P	3/3					X
	LS-1165A	3/1R	P	P	P	/					
	LS-1191B	3/1R	P	P	P	/					
06-2-1165-2	LS-1113	3/1R	P	P	P	2/2					X
	LS-1154	3/1R	P	P	P	2/2					X
	LS-1167	3/1R	P	P	P	2/2					X
	LS-1193	3/1R	P	P	P	2/2					X
	LS-1235	3/1R	P	P	P	2/2					X
06-2-1166-1	LS-1256X	3/1R	P	NA	P	3/2R	P	N	P		X
06-2-1166-2	LS-1257X	3/1R	P	NA	P	3/2R	P	N	P		X
06-2-311000-01	LS-3058	2/1R	P	F	P	/					
06-2-311000-02	LS-3158X	2/1R	P	P	P	/					
06-2-311000-03	LS-3258X	2/1R	P	P	P	2/1R	F	F	P		X
06-2-330001-2	LS-3059	1/1				2/1R	P	P	P		X
06-2-330003-1	LS-3016	3/3				/					
06-2-330003-2	LS-3015	3/3				/					
06-2-330005-1	LS-3060	1/1				/					
06-2-330005-2	LS-3060A	1/1				/					
06-2-330050-1	LS-3168X	3/1R	P	NA	P	3/1R	P	P	P		X

ORIGINAL PAGE IS
OF POOR QUALITY

IDENTIFIERS		NASA			IOA RECOMMENDATIONS *					ISSUE
NASA FMEA NUMBER	IOA ASSESSMENT NUMBER	CRIT HW/F	SCREENS A B C		CRIT HW/F	SCREENS A B C			OTHER (SEE LEGEND CODE)	
06-2-330050-2	LS-3060B	1/1			/					
	LS-326BX	1/1			/					
06-2-371000-1	LS-3062	3/1R	F	NA P	3/1R	F	P	P		X
06-2-371000-2	LS-3061	3/1R	P	NA P	/					
N/A	LS-3010	/			/					
	LS-3024	/			/					
	LS-3032	/			/					
	LS-3035	/			/					
	LS-3039	/			/					
	LS-3040	/			3/1R	P	P	P		X
	LS-3041	/			3/3					X
	LS-3043	/			3/1R	P	P	P		X
	LS-3046	/			/					
	LS-3050	/			3/1R	P	P	P		X
	LS-3051	/			3/3					X